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OBSERVATIONS ON THE GROWTH AND NOURISHMENT OF PLANTS.

No nation has produced more scientific ideas relating to agriculture, than the United States; but owing to various causes, the chief of which is the want of popular appreciation and sympathy, these valuable ideas have been universally neglected, and nearly fruitless. The truth of this statement has been strongly impressed on our mind by reading a short paper "On the Growth and Nourishment of Plants," by Mr. EZRA L'HOMMEDIEU, Vice President of the Society for the Promotion of Agriculture, Arts, and Manufactures; organized in 1791, and chartered by the Legislature of New York in 1793; which was written near the close of the last century. But few copies of the Transactions of this Society were printed, and it is due to the agricultural literature of the country that some of its most useful articles be reproduced for the instruction of the present generation. Chancellor LIVINGSTON was President of the Society from its beginning till his lamented death, in 1813; and nearly all its essays were from the pens of the ablest men this State or nation can boast. So high is our estimation of the science of Mr. L'HOMMEDIEU at that early day, and before LIEBIG was born, that we copy with the pen, and publish the whole of his "Observations" above referred to, for future use.

"In considering the growth of plants and vegetables, we shall inquire, so far as we are able, into their food or nourishment; and in doing this, shall endeavor to go no further than we can be justified by facts and appearances. I believe we are on safe ground when we say that the plant receives no nourishment from the earth. Many have been the experiments of raising plants, shrubs, and trees, in boxes filled with earth; and this earth being weighed after the shrub or tree had grown to maturity, (as the orange and lemon tree,) and after taking out the tree, the dirt is not found to have lost any of its weight. It thence follows that the earth is only a bed to hold up the plant or tree, that it may receive its nourishment from some other source; and the difference between good land and poor land consists only in the position of its parts, so as to enable the plant or tree to receive nourishment from different resources better in the one than in the other, although neither afford any in themselves.

"The next inquiry will then be, What is the food of Plants? and the last, By what means is this nourishment received?

"If we leave out earth, there will remain only the two elements water * and air that can afford nourishment necessary for the food and growth of the vegetable creation: for it is supposed in this theory, that manures of any kind afford no nourishment to the plant, but only answer for the purpose of altering those parts of the earth in such a manner as is best calculated for the extension of roots, and reception of the water and air; or by attractions of such parts of the atmosphere as are food for plants, or, by the emission of fixed and other air, of which they are peculiarly possessed, add to vegetation. If we suppose, as some philosophers have lately endeavored to prove, that water is formed from air, and of which there appears to be great probability, there will then be in fact nothing but air in some shape or other, from which vegetables can derive subsistence. But at this we shall not be surprised when we consider the atmosphere as a vast laboratory, in which nature as the operator performs immense productions of various kinds, suitable for the nourishment of every species of the vegetable creation, and is the grand receiver in which the decomposition of all bodies, and the various kinds of air arising from them, are received, mingled, combined, and separated, *not by chance*, but by

* As a small proportion of earth is found in all water, and a small proportion of earth in all plants, being analyzed, *it is not designed* to exclude this earth, [the ash of plants,] found in all water, from the nourishment of plants.

infinite Power and Wisdom. Chemists are agreed in one general opinion, which has been satisfactorily proved, that, supposing the air in general, or atmospheric air, to consist of 100 parts, only about 28 of those parts are adapted to the support of animal life; the other parts are for the nourishment of vegetables. We see vegetables grow more rapidly in cities than in the country, which confirms the theory; as in cities the air has a greater proportion of putrefaction, consequently more of that kind of air suitable for the growth of plants than in the country. We further observe, where a compost is made of putrefying substances, as fish for instance, *vegetables at a distance from the heap of compost grow luxuriently*, which must be from the putrified air proceeding from the compost, and absorbed by the leaves or blades of the vegetables. We frequently see in flower pots hyacinths and other vegetables growing rapidly and coming to perfection, supported by the mouth of the flower pot, the pots being filled with water only, in which we see the roots growing and extending in proportion to the stalks, leaves, and flowers. Here the plant receives all its nourishment from the air and water imbibed by its roots and branches. The *sedum anacampseros*, or evergreen, too, we frequently see hung up by a thread, growing very well without any water, and nourished only by the air. It can not be thought more strange that the air should change into a plant, shrub, or tree, or *any other body*, than that they should be decomposed and return to air again. This we see performed every day: for instance, the candle by which I now write is continually diminishing and returning to the great reservoir of nature, and there being worked up, will become the food of vegetables, which being eaten by the ox becomes a part of his tallow, and it being made into candles, may at a future period afford me light to write a second time. If our theory be true, it follows that all vegetables are produced in their great variety by different kinds of air, which the chemists of the present day would call inflammable air, vital or pure air, and mephitic or impure air. These different airs being combined in the different organic strainers in a manner yet inexplicable, composes their different substances, and supports them in their vegetation, growth, and propagation. By some late experiments it appears that fixed air, called by chemists *carbonic gas*, and is the same air which makes beer or cider foam when poured out of a bottle into a glass, or which makes the emptyings or yeast raise the flour, or the springs of Saratoga and Ballston do the same, *is very favorable to vegetation.*

"Ashes have a very powerful effect in the southern part of the State, as a manure, although they are not a putrified substance. The salts of ashes, called by chemists alkali, have the power of attracting the nitrous air from the atmosphere in great abundance. This is seen by boiling water leached from earth taken from covered places, where as soon as you add a little lye from ashes, the *nitre*, which before adhered to the earthy parts in the water, immediately disengages itself from the earthy parts suspended in the water, and adheres to the lye, which makes the saltpetre we use, and which is one of the most powerful manures. Again, if a heap of dirt is put under cover and frequently sprinkled with lye, the attraction of nitre from the atmosphere will be so great, that in a short time the heap will be covered with nitre, in appearance to hoar frost. This nitre is part of the air, [true,] and being found by experience to be good manure, must be a part of the vegetable production, which when decompounded, or becoming dissolved by putrefaction or otherwise, returns again into the air. The fixed air (carbonic acid) escaping from all fermented, vegetable substances, as well as from those which are in a putrifying state, shows that fixed air composed a considerable part of their substances, and consequently must be one of the *best* manures.

"If we extend our ideas a little further, and consider that all flesh is grass, as the inspired writer expresses it, and may be literally true, we may safely conclude that all animals as well as vegetables are composed of air and water. The grass is nourished and comes to perfection by these elements, the ox eats the grass, and the man not only eats the ox but vegetables also; and by the various organizations of the plant, ox, and man, their different substances are produced, being originally from the air and water. Dr. PRIESTLY, by his important discoveries, has greatly added to the knowledge of analyzing the air, which is found capable of being divided and separated into all its different parts, and has become a great source of useful knowledge to the world. Physic has been greatly improved by these late discoveries, and by it *persons have been restored to health as by miracle.* The philosophic mind has been delighted in the experiments, in contemplating those marvelous works of nature, which are upheld and directed by infinite Power and Wisdom. The agricultural interest, too, experiences the beneficial effects of these discoveries in procuring manures, by which subsistence for man is afforded from old and worn out fields."

It is worthy of note that, fifty-five years ago, farmers in the Hudson and Mohawk valleys had occasion to complain of "old and worn out fields;" and why? Because they, like their descendants in our day, thought that the systematic study of nature's laws in their connection with agriculture, was time and money thrown away. Had L'HOMMEDIEU, MITCHELL, LIVINGSTON, DE WIT, WATKINS, BECK, CLINTON, VAN RENSSELAER, and others, been sustained in their patriotic efforts to elevate tillage and husbandry to the dignity of an educated and honorable profession, this whole Republic would now be something like a Paradise to live in. But instead of encouraging the application of science to agriculture, there is not one acre of arable land in the United States dedicated to experimental purposes for the advancement either of the science or

the practice of rural economy. For what little we have learned since the above was written in the eighteenth century, we are indebted to the agricultural schools and professors of Europe. We have lost a half century in agricultural progress; for without genuine science there can be no substantial progress. Every school boy should know that practice alone only repeats what practice had before done, so that progress is impossible. An experiment is a search after a thing unknown, or it is no experiment. Such an investigation is prompted, not by practice, but by theory. Theories differ as widely in value as agricultural practice; but while most cultivators are quick to discover defects in practice, all theories of farming appear to them alike worthless, *except their own.* To have a sound theory, one needs large experience in rural affairs, and to be well read in the literature and sciences that appertain to agriculture. Such an one must know that the damage annually done to American soil can not be repaired by any known process for less than three hundred and thirty-six millions of dollars; and that, as the crops grown and removed increase rapidly from year to year, the injury increases in the same ratio. The alkalies that draw nitre from the air, as stated by L'Hommedieu, are now extracted from 112,042,000 acres, and thrown into rivers, lakes, and the ocean, to improve the soil!

In Europe, where ashes are less abundant than in this country, they are extensively used for making artificial nitre beds in conjunction with manure. In forming such beds, care is taken to leave open passages under them for the free passage of air, from which nitrogen is absorbed in forming the nitric acid which combined with potash produces saltpetre, and united to soda forms cubic nitre. To extract the food of plants from the atmosphere, and retain it in the soil in a condition to meet the wants of plants, all alkalies (potash, soda, and ammonia,) and alkaline earths (lime and magnesia,) are invaluable. It is this fact that makes us regret the constant waste of alkalies on farms, in villages, and in cities. Some fancy theorists teach, that barely shading the ground will develop a nitre-bed anywhere, as though potash could be extracted from pure sand or pure clay. This mineral is no better husbanded now in the United States by the mass of citizens in cities and rural districts, than it was sixty years ago; nor is the production of saltpetre in barnyards better understood now than in the time of L'Hommedieu. No satisfactory experiments have been made during the first half of the present century in drawing the nourishment of cultivated crops from the atmosphere, and hence no advancement in knowledge has been achieved in that direction.

MIXING SOILS AND MANURES.

An acre of soil, estimated to the depth of ten inches, weighs usually not far from a thousand tons. It is a heavy dressing of common stable manure, equal to thirty loads of over a ton each, which supplies ten tons of solid matter to the acre. Admitting that one applies that quantity, every one hundred grains of soil to the depth of ten inches should have one grain of finely divided manure intimately blended, and perfectly incorporated with it. This is the ideal of garden culture, in which well rotted manure and deep and frequent tillage form a soil of exceeding fertility. In ordinary farming, the manure goes into the ground in comparatively large and isolated masses, while hundreds of pounds of earth may be found without a particle of the applied fertilizer within it. In one place, the roots of plants have an excess of manure; and in another, they are in a starving condition. If it is bad to do without any manure, it is but little better, and often worse, to make so unwise a use of this food of crops. Manure is the elixir of vegetable life — the very "salt of the earth." How, then, ought manure to be prepared? How applied to tilled land, meadows, and pastures?

If all soils, all climates, all manures, and all crops, were alike, nothing would be easier

than to lay down rules for the preparation and use of manure, to which there could be but few exceptions in practice. No such uniformity in circumstances exists; and on that account, very much must be left to the sound judgment of the husbandman. There can be no reasonable doubt that manure dissolved in water (a weak solution) can be most evenly diffused through the whole mass of soil to which it is applied. Water holding the organic and inorganic aliment of plants in solution, permeates the earth wherever it is possible for roots to extend. In this condition, their daily nourishment is always ready for use; but when a mass of raw, insoluble dung or vegetable matter, is buried in the earth or spread upon its surface, the case is entirely different. In time, this solid will dissolve; but being in large lumps, the sand, clay, and mould that immediately surrounds the manure, will imbibe it all and leave three-fourths of the soil as devoid of fertilizing atoms as it would be had no manure been spread on the land. All who are familiar with agriculture in districts where the soil is naturally thin, and frequently badly worn, must have seen grass, grain, and other crops, grow in bunches on partially manured fields. This is owing to the extreme unevenness with which the fertilizers have been applied—some plants (a very few) have a feast, others a continuous fast. In all such cases, the manure does not do half the good to the land and its crops that it is capable of; and nothing in tillage and husbandry more needs reform than the defective manner in which soils and manures are mixed together. Composts so covered with loam, mold, ashes, and charcoal, as to lose none of their gases, nor soluble salts, should be rotted sufficiently to break up into fine particles before spreading, plowing in, and harrowing. In this way alone can one readily incorporate manure with clay, sand, and mold, so that it will wholly disappear.

But it is frequently inconvenient to wait for manure of any kind to rot before it is used; and it is desirable to know how it can be best applied. It should be spread with much greater care, broken finer, and distributed evener, than is generally practiced. This rule holds good whether dung is applied as a top-dressing to meadows and pastures, or to plowed, or about to be plowed, lands. The equal diffusion of the fertilizer through the body of the soil from its surface down to the depth at which the roots of crops descend, is the perfection of manuring by the aid of any given quantity. Its extreme division greatly favors its solution in the earth, and the proper feeding of the farmer's needy crops. Some say that the natural tendency of fertilizers is to rise to the surface, and therefore manure should be covered deep with the plow; while others contend that manure naturally sinks with the water that descends to form springs, or runs out in under-drains; and therefore manure should be covered only two or three inches in depth. Both of these statements are partly true and partly erroneous. All the dissolved food of plants both ascends and descends around their roots to nourish and support vegetation. The evaporation of water from the surface of the ground, and from the numerous leaves of plants and forest trees, induces an upward movement of water from the subsoil; but when it rains, or from any cause there is more moisture in the surface soil than in the earth below it, water descends and manure with it, if soluble and present on the surface. The droppings of all animals in a state of nature enrich the land without the aid of the plow or harrow, or being covered with earth. Art and science undertake to do more than unaided nature accomplishes; and a large increase of physical as well as other comforts, is attained. But for some reason, the art and science of agriculture are less studied, and less investigated in a philosophical way, than any other in the whole range of useful knowledge and occupations. The nice adaptation of manures to the peculiar wants of every crop, is a point in farm economy now universally neglected. Defects in soils are attracting some attention; but how to remedy these defects in the cheapest manner, is a desideratum that can never be realized until there is more system in our vague and meaningless researches as practical farmers. What new truths did the three millions of agriculturists in this country develop in the year 1851?

PLOWING IN GREEN CROPS.

When a plant is burnt in the air, the ashes which remain are termed by chemists the *inorganic* constituents; that which is burnt away, the *organic:* and though this definition is not strictly correct, it is sufficiently so for all practical purposes. The great storehouse of the *organic* elements of plants, is the atmosphere; the *inorganic* elements are obtained by plants only from the soil. The amount of produce which a soil destitute of organic matter will annually yield by the disintegration of its inorganic elements, may be considered the *natural yield* of the land. What that amount will be, will depend, within certain limits, on the abundance or scarcity of these mineral constituents of the plants grown; but plants can not grow at all without organic matter, or those elements which the atmosphere will supply. Now, in what quantity will the atmosphere supply these to the plants, providing there is a sufficiency of mineral matter? This depends on the kind of plants, the length of the growing season, and the quantity of rain and number of rainy days in that season. It has indeed been supposed by some eminent chemists, that the atmosphere would supply an *unlimited amount* of organic constituents to the plants, and that therefore the yield of any given crop would be in exact proportion to the quantity of inorganic matter existing in the soil in an assimilable condition;—that, if there were only mineral elements sufficient in an acre for five bushels of wheat and straw, only five bushels would be grown; but if there were sufficient for fifty bushels, a produce of fifty bushels per acre would be obtained. To the first proposition we of course agree, thinking that up to the amount of produce for which the atmosphere supplies sufficient organic matter, the yield will be in exact proportion to the mineral matter available in the soil; so that the point at issue between the "mineral theory" and "ammoniacal theory" advocates, is, the *amount* of organic matter which the atmosphere annually supplies to certain crops,—and there is no subject of more importance connected with agricultural chemistry, affecting as it does the reason of all our systems of agriculture, rotation of crops, the value of manuring substances, and in fact everything connected with agricultural operations.

Without therefore attempting to settle the question as to whether soils are easily exhausted of their mineral constituents or not, we will give some results of experiments by Mr. Lawes, that, so far as wheat is concerned, entirely satisfy us that to obtain *large crops*, it is absolutely necessary *to supply organic matter* in the soil; or, in other words, that the atmosphere will not supply sufficient organic matter for a *large crop* of wheat.

The experiments were commenced in 1843. The soil a rather heavy loam, or what is generally known as a good wheat soil. Four grain crops were taken from the field the four years preceding the experiment, without any manure of any kind being supplied. The field devoted to the experiments contains fourteen acres. It is divided into thirty-three portions, which have been sown with wheat (and the whole crop of wheat and straw removed) every year. One plot has been left unmanured since the commencement; another supplied with fourteen tons of barn-yard manure per acre each year, and one with the ashes of fourteen tons of barn-yard manure; some with "Liebig's Patent Wheat Manure," and others with all kinds of chemical mineral manures, alone and in various combinations; some with rice at the rate of one ton per acre, rape cake in various quantities, and sulphate and muriate of ammonia alone and in conjunction with all kinds of mineral manures. The detailed results of such extensive experiments can not of course be given; and in fact, a mere summary of them would occupy more room than our space will admit. Suffice it to say, then, that the *average* yield of dressed grain per acre, of seven successive crops on the continuously unmanured plot, was 17¾ bushels. The average yield of nine plots, the first year dressed with a variety of artificial mineral manures corresponding to the ash of wheat and straw, was 16¾ bushels.

The ashes of fourteen tons of barn-yard manure, gave 16 bushels. The average of the seven years on the plot dressed with fourteen tons of barn-yard manure per acre each year, was 28 bushels. An acre dressed with 168 lbs. each of sulphate and muriate of ammonia, gave 33¼ bushels; another, with 150 lbs. each of sulphate and muriate of ammonia, 25¾ bushels; while a plot by the side of it, dressed with 150 lbs. each of sulphate and muriate of ammonia, and 300 lbs. potass, 200 lbs. soda, 100 lbs. sulphate of magnesia, 200 lbs. calcined bones, and 150 lbs. sulphuric acid, gave 25 bushels. Again, with 200 lbs. each of sulphate and muriate of ammonia, we get 32¾ bushels; while 300 lbs. potass, 200 lbs. soda, 100 lbs. sulphate of magnesia, and 200 lbs. calcined bone dust, with 150 lbs. sulphuric acid, gave 17¾ bushels. 224 lbs. sulphate of ammonia gave 27¼ bushels. 224 lbs. sulphate of ammonia, and the ashes of three loads of wheat straw, gave 27 bushels.

These results, which we have selected as showing the general indications of the experiments, will throw much light on our point—What amount of organic matter will the atmosphere supply to a wheat crop on a soil having an abundance of inorganic constituents? The average crop on the continually unmanured acre was 17¾ bushels; and where *inorganic* or *ash constituents* were supplied, the crop was not increased. But when a salt of ammonia is used, the crop in some instances was doubled; and in no instance during the whole course of the experiments, has ammonia been used without *greatly increasing the crop.* On one acre where ammoniacal salts alone were used, the average yield of six successive crops was 27 bushels. This clearly shows that there was abundance of inorganic matter in the soil, but that for want of organic matter the plants could not assimilate them. It can not be said that the wheat was not in favorable circumstances for collecting organic matter from the air, for the land was always plowed twice previous to sowing, and during the spring the crop was hand-hoed twice, and sometimes thrice, care being taken to have all the plots hoed at the same time and treated similarly in every mechanical operation.

We therefore conclude that, though a soil has an abundance of every inorganic constituent of the wheat plant in an available condition for 40 bushels per acre, yet if there is not a corresponding sufficiency of organic matter, but the plant is dependent solely on the atmosphere, a crop averaging about 17 bushels only will be obtained; and this may be considered the natural yield of a soil, organic matter being derived from the atmosphere sufficient for this amount. If we wish to increase this yield, we must get an artificial supply, or an accumulation, of organic matter in the soil; and as organic matter consists of four elements—oxygen, carbon, hydrogen, and nitrogen—it is important to know which of these is the most essential. In the experiments above given, where 14 tons of barn-yard manure were each year used per acre, an average crop of 28 bushels was obtained; and where ammoniacal salts alone were used for six years, an average of 27 bushels. Now, besides a large amount of *inorganic matter*, the 14 tons of barn-yard manure contained an immense amount of organic matter—carbon, oxygen, hydrogen, and nitrogen—and from the fact that the ammoniacal salts alone did as much good as the minerals, carbon, and ammonia in the dung, we conclude that ammonia (hydrogen and nitrogen) is the only organic matter that need be supplied to the wheat crop. The rice, rape cake, and other carbonaceous manures used in the experiments, did good only in a corresponding proportion to the nitrogen they contained. So that, to increase our wheat crops over 17 bushels per acre, we must in some shape or other supply *ammonia;* or, what is equivalent, nitrogen.

To obtain this ammonia, is the great difficulty in the way of *increasing* our wheat crop. In Great Britain, immense quantities are purchased in the form of Peruvian guano, and sulphate and muriate of ammonia; and highly *nitrogenous* artificial foods are purchased for cattle, which make a manure containing a high per centage of ammonia. By this means their average wheat crop is nearly as much again as ours. Since

the introduction of free trade, and the consequent reduction in the price of agricultural products, it is asserted that this "high farming" is attended with low profits. Be that as it may, if the use of guano and the consumption of oilcake does not abate, it will be pretty good evidence that it is found profitable with prices but little higher than our own.

The reader will wonder what this has to do with plowing in green crops. Much, every way. The reason of the benefit of a crop of clover plowed in for a crop of wheat, is rather a difficult thing to see if we adopt the mineral theory; for there is no evidence to show but what the wheat plant can extract the mineral elements from the soil as well as the clover plant; and therefore, if there is inorganic matter for the clover, there is for the wheat: for both plants require precisely the same elements. It is said that clover roots descend further into the subsoil, and bring up these fertilizers from below, and thus supply the following wheat crop. But why will not the wheat roots obtain this?—we have seen several wheat roots six feet long, and one *nine* feet; and believe when the wheat plant is strong and healthy, that its roots descend as low as do those of clover.

Abandoning the mineral theory and adopting the ammoniacal one, we have at once a satisfactory reason for the benefit of clover and other green crops plowed in as a manure for wheat. To increase our crop of wheat, we must supply ammonia. Now, when we plow in a crop of clover, this is just what we do supply. We do not gain minerals by the operation, as they already existed in the soil, and some have perhaps been removed by a crop of hay the previous summer; but the clover obtains *ammonia* from the atmosphere, which becomes organized in the roots, stems, and leaves of the plant; and when they are plowed in, they decompose, and furnish ammonia for the wheat crop. A crop of red clover that would make a ton and a half of hay, would contain 60 lbs. of nitrogen, and according to the results of Mr. LAWES' experiments, would, if plowed in, increase the following wheat crop twelve bushels per acre; and this without taking the roots into consideration, which would probably contain half as much nitrogen as the last crop of clover. This would make *an increase of eighteen bushels per acre*, as the benefit of growing clover and plowing it in.

The proper time to turn in the clover, is just before flowering; it is then full of rich nitrogenous fluids: whereas, in the act of flowering, nitrogen is evolved, and the clover is not so good either for hay or manure. This fact will also indicate the proper time for cutting clover for hay. If allowed to stand until after it has flowered, not only will there be a loss of nitrogen, but the soluble saccharine matter will be converted into insoluble starch and innutritious woody fibre.

In deciding on the economy of plowing in clover for manure, or converting it into hay, we have to consider its effect on the wheat crop, the price of the wheat, the value of the hay, and what it would cost to obtain manure in some other way. We have just purchased guano in New York, for experimental purposes; it cost us there $50 per ton; and if it contains 16 per cent. of ammonia, we shall consider it a first rate article. This is paying 15 cents per pound for ammonia. Now, we have said that a crop of clover which would make a ton of hay, would contain about 40 lbs. of nitrogen, equal to about 48 lbs. of ammonia. This at 15 cents per pound would be $7.20, as the value of a ton of clover hay for manuring purposes; and if plowed in, it would increase the wheat crop 8 bushels. But there is another view of the subject. Besides nitrogen, clover contains a large amount of carbon, oxygen, and hydrogen, so united with each other and nitrogen as to form valuable food for animals, though the first three elements are not necessary as food for the wheat plant, as has been before shown. Now, if this clover is consumed at home by horses, sheep, &c., these elements will be used in the animal economy, and nearly all the nitrogen will be voided in the liquid and solid excrements, (principally in the former,) which, if carefully husbanded, can be returned to the field without much loss.

Besides clover, there are many other crops which are grown for plowing in as manure. Their value for such a purpose is always in proportion to the amount of nitrogen they extract from the atmosphere; and as all the cereals consume nitrogen rather than collect it, they should never be grown for this purpose. Such are oats, buckwheat, rye, corn, timothy, &c. Peas and tares collect large quantities of nitrogen, and might be profitably grown for the purpose of plowing in while green. Rape is often grown in England for plowing under; but it requires rich land to produce a good crop, and we can not recommend it. Spurry, white lupins, borage, and many other plants, are grown in Europe for manure; but none of them have been fairly tried in this country, and we therefore can not speak of their respective merits. On the whole, we know of nothing at present so well suited to our soil and climate, and so valuable either as food for stock or plowing in as manure for wheat, as red clover; and we would most earnestly recommend its more extensive culture in the place of the cereal timothy, especially on all wheat farms. We do not wish to see large crops of clover grown, converted into hay, and sold off the farm, unless manure be purchased in return in equal proportion, knowing that such a course must soon exhaust the land of the *mineral elements;* but if the clover is consumed on the farm by stock, or plowed in as manure, and nothing but the grain of wheat sold off the farm, we apprehend no such exhaustion.

THE FATTING QUALITIES OF DIFFERENT BREEDS OF SHEEP.

In deciding on the merits of any breed of sheep, it is of course necessary to consider the object for which they are specially kept—whether for wool, tallow, or mutton, and the relative prices of these products. Thus, in England, mutton seldom sells for less than twelve cents per pound, while the best refined tallow is worth but seven cents, and wool twenty four cents per pound. Under these circumstances, it is evident the farmer will keep that breed of sheep which yields the most mutton of a superior quality with the least consumption of food, while tallow and wool-making qualities will be minor considerations. In this country, the circumstances of the case are just the reverse—wool of the same quality is worth more here than in England, while tallow is usually worth twice as much as mutton.

We make these remarks to introduce to our readers some results of experiments recently published by Mr. Lawes, on the "Comparative fatting qualities of different breeds of Sheep;" and though only two breeds have yet been tried, the facts brought to light can not fail to interest our readers. The breeds taken were the Hampshire and Sussex Downs. Forty animals of each breed, selected from the best flocks in Great Britain, were placed side by side upon rafters, in a long shed. They were fed with oilcake, clover hay cut fine, and ruta baga. The average weight of the Hampshire sheep when put up, (November 7,) was 113 lbs. per head; that of the Sussex sheep was 83 lbs. The amount of oilcake and clover chaff allowed them was in proportion to their live weight. Thus, the forty Hampshires were allowed forty pounds of oilcake and forty pounds of clover chaff per day; and to the Sussex, thirty-two pounds of oilcake and thirty-two of clover chaff. Ruta bagas were allowed them *ad libitum*. The entire period of the experiment was twenty-six weeks. The average weekly consumption of ruta bagas per head of the Hampshires, was 106 lbs.; and of the Sussex, 79 lbs.: or, for 100 lbs. live weight of animal of the Hampshires, 71½ lbs.; and of the Sussex, 69 lbs. The average weekly increase per head was, of the Hampshires, 2 lbs. 12 oz.; and of the Sussex, 2 lbs. 2 oz.: or, for each 100 lbs. live weight of animal of the Hampshires, 1 lb. 14 oz.; and of the Sussex, 1 lb. 11 oz. From these figures it is evident the Hampshires lay on fat quicker than the Sussex; but the question is, which breed pro-

duces the most increase from a given amount of food. The following table will show the amount of food consumed by each breed, to produce 100 lbs. increase:

TABLE, SHOWING THE AVERAGE FOOD CONSUMED TO PRODUCE 100 LBS. INCREASE DURING THE PERIOD OF 26 WEEKS.

	Oil Cake.		Clover.		Ruta Baga
	lbs.	*oz.*	*lbs.*	*oz.*	*lbs.*
Sussex,	314	4	304	3	4086
Hampshire,	294	0	259	12	3941
More food required by Sussex sheep,	20	4	44	7	145

From this table it will be seen that the Sussex sheep, to produce 100 lbs. increase of animal, required 20¼ lbs. more oilcake, 44½ lbs. more clover, and 145 lbs. more ruta bagas, than the Hampshires. The average weight of wool per head was, from the Hampshires, 6 lbs. 4 oz.; and from the Sussex, 5 lbs. 10 oz. The proportion of wool to 100 lbs. live weight of animal was, for the Hampshires, 3¾ lbs.; and for the Sussex, 4½ lbs. The average weight per head of the Hampshires when fat, including wool, was 183 lbs.; and that of the Sussex, 141 lbs. The average weight of carcass of the Hampshires was 101 lbs. 14 oz.; of the Sussex, 76 lbs. 13 oz. The average weight of offal per head was, from the Hampshires, 12 lbs. 4 oz.; from the Sussex, 9 lbs. 10 oz. The exact age of the sheep is not stated; but as they are called lambs, we presume when killed they were about fifteen months old.

Of the money results of the experiments we need not speak; it depends on the price of oilcake and the cost of raising clover and ruta bagas. In England, however, it is considered profitable, when fatting sheep on ruta bagas as the principal food, to give them oilcake and clover chaff, providing the increased value of the sheep is sufficient to pay for the additional food; the value of the manure, which is much improved by the oilcake, more than paying for the ruta bagas and cost of attendance.

Of the value of these two breeds of sheep our readers will be able to draw their own conclusions from this summary of results given. It is evident that the consumption of food per 100 lbs. live weight of animal is nearly identical in both cases, and that the Hampshire will give a greater increase for this food than the Sussex sheep. The Sussex, however, produced the most wool, which sold for one cent per pound more than the Hampshire. Our own conclusions from these experiments are, that the Hampshires will be found more profitable for this country than the Sussex.

Mr. LAWES is now trying experiments between the Cotswold and New Oxford, and the Lincolnshire and Leicestershire breeds. He informs us in a private letter, that so far as increase of animal from a given amount of food is concerned, the Cotswold are superior to the New Oxford and both the Hampshire and Sussex downs. In an experiment on Hampshire downs, on the nutritive value of different foods, Mr. LAWES found that, sheep weighing 121½ lbs. at the commencement of the experiment, consumed 7 lbs. of oilcake and 22 lbs. of clover hay per head per week, and increased 30¼ lbs. in 19 weeks, or 1 lb. 9½ oz. per head per week. The same kind of sheep by the side of these, fed with linseed and clover hay, and weighing when put up exactly the same as the others, consumed 7 lbs. of linseed and 20 lbs. of clover hay, and increased in 19 weeks 28½ lbs., or 1½ lbs. per head per week.

The oilcake used in all these experiments was American, which contains more nitrogen, and sells for a higher price, (at present it is worth $40 per ton,) than the English. The English contains more oil than the American. This, however, does not materially increase its value; for it will be seen that, *weight for weight*, the cake which is left after the oil is pressed out of the linseed, is more fatting than the linseed itself. This, so far as we have seen, has been the result of every trustworthy experiment on the relative value of oilcake and linseed as food for animals. It would indicate that oil is not of such a fatting nature as has been generally supposed.

Condensed Correspondence.

SALT vs. FIRE.—In the November number of the *Farmer* for last year, I noticed a communication relative to the burning of a barn, as was supposed, by spontaneous combustion, produced by the grain being drawn in too damp. Your answer directed that the hay and grain should be thoroughly dried before storing. This is good advice when it can be adopted without the hazard of grown wheat, and bleached and half rotten hay; but there are times (instance the last two seasons) when this seems impossible. Now, permit me, with due deference to your superior knowledge and ability, to suggest a preventive to you and the readers of the *Farmer*, which I have adopted with much confidence for some years past. I refer to salting both hay and grain when drawn in. This to some extent has been practiced among farmers in these parts, but perhaps by few, if any, with a view to this idea. And it is doubtless attended with other advantages. It is a well known principle of chemistry, that substances in passing from a denser to a rarer state, produce cold, as salt, snow, &c.; and this, so far as I know, seems to be somewhat peculiar to salt. Who is not acquainted with the sensation of cold felt upon immersing the hand in strong brine. Numerous illustrative examples might be given, but let this one suffice. SOUTH BRISTOL.

SHEEP FRAUDS.—We have seen statements published in agricultural journals, by Vermont wool-growers, bragging of their sheep and fine wool, and challenging the world to produce their equal. Such assertions are a touch beyond the exaggerating advertisements of quack doctors, puffing their nostrums. These nauseous assertions, like bitter pills, require oiling, as they do their sheep, before the farmers of the west can be made to swallow any more of them. Now, if their wool is as good as they have represented it to be, will you, Messrs. Editors, or some of your Vermont subscribers, be so kind as to tell us, through the *Farmer*, why it is that the greater part of last year's clip of Vermont wool was still in the hands of the growers, unsold, on the first of March last? and why it is that the manufacturers purchase up all the wool about the country at shearing time, and pass by Vermont wool as unworthy of their notice? The dear bought experience the farmers of the west have had for the past two years, in purchasing eastern sheep at prices much above their value, compels us to state that many of their sheep, like their wool, have proved very different from what they were represented to be. The sheep pedlars cut the eye teeth of many of our farmers, which has created a great distrust in anything that writers or pedlars may say respecting their sheep, and now we are all on the look-out for sharpers. A.—*Ann Arbor, Mich.*

RUTA BAGA AND MANGEL WURZEL.—I have been in the habit of raising about half an acre of ruta baga for several years, and think them indispensable for my flock of breeding sheep in the spring. I usually sow them the last week in June, in rows about thirty inches apart, and hoe them out ten inches in the rows. I have never used superphosphate of lime, but if sufficient to manure an acre can be made by the farmer himself for four dollars, as you say in the March number, I should think if it does as much good as you say it does for root crops, that it is much cheaper than barn-yard manure. I usually get about three hundred bushels of ruta baga from the half acre. I have never grown mangel wurzel, but as you so strongly recommend them in the March number, I mean to plant a quarter of an acre this year, by way of experiment. You say that "though this root contains about 87 per cent. of water, yet more nutritive matter can be obtained per acre from this crop than any other." I certainly should not have thought that roots contained 87 lbs. of water in every 100; but you say that ruta baga contain even more water than mangel wurzel, and that even green clover contains 80 per cent. of water.

I was not a little surprised at the amount of water a crop of clover exhales during its growth, from an acre of land—no less than 430 tons, or 8600 lbs., per day. Truly, plants require, or at least take their food in a very diluted state. And it would seem, as you say, that this amount of water, impregnated as it is with carbonic acid and ammonia, is capable of taking up every element that enters into the composition of the plant, even the most insoluble. A CONSTANT READER.—*Dutchess Co., N. Y.*

GROWING MELONS.—Perhaps it would interest some of you readers to know of a method of cultivating melons which I have practiced very successfully for the past three or four years. For some reason they do not ordinarily ripen well in this region when planted, as on Long Island or in New Jersey, in the open air. I have first dug holes two and a half feet deep and three or four in diameter; into this, the last of April, I have thrown stable manure, such as is used for hot-beds, three or four wheel-barrowfuls. On the top of this I place a box, shaped like the box of a hot-bed, but only large enough to require four panes of 8 by 10 glass, and in the box I place six or eight inches of sand, with ashes and charcoal, and hoe the dirt around the box in the form of a neat mound. After a few days I plant my melon seeds, enough to give me a selection of the best plants, leaving but three in a hill when fully grown. In the sides of the box may be sown tomato seed, as in a hot-bed. The result has been, that my melons and tomatoes have ripened two or three weeks earlier than they would otherwise have done, and in great profusion. F.—*Homer, N. Y.*

SWEET POTATOES.—I have been raising sweet potatoes for the last seven or eight years, and for the most of that time have experienced much difficulty and loss in wintering the seed for the next year's crop; but I now feel much gratified in being able to inform you and the public, that all the extra labor which I believe to be generally thought necessary to preserve the seed over winter, is entirely unnecessary and worse than useless, of which I have been growing suspicious for several years past. Last fall I adopted the following mode, with complete success and entire satisfaction:

I dug my potatoes during a spell of nice Indian Summer, about the first week in October. They were handled carefully, taking care to bruise them or fracture the skin as little as possible, (which I think as necessary as in the management of keeping apples,) and spread on a clean sod and exposed to the sun for from a week to ten days. I then carefully gathered twenty-six bushels of them in a basket, carried them up stairs, laid them away in barrels and boxes, and covered them up with old carpets, bags, or anything to keep the air from them. When the winter began to set in cold, I collected them around the stove-pipe and chimney, and covered them all over in a body with boards and other covering extending down to the floor, thus husbanding all the heat that might arise through the course of the day from the pipe and through the floor, which were considerable, as they were located over a cook stove in which there was generally fire from five o'clock in the morning until nine or ten at night. During some of those coldest days and nights, (of which some were extremely cold—from 12 to 15 deg. below zero,) the heat was so great on those boxes and barrels nearest the pipe, say within six inches, that I could scarcely bear to hold my hand on them at that point. There were two barrels, furthest from the fire, that were touched with the frost a little, which I overhauled in February. I believe I can safely say the whole loss on the twenty-six bushels, including those that were frost-bitten and a few small ones dried up by the excessive heat, did not exceed five pecks. I now have thirteen bushels of them in hot-beds, and offer the plants at fifty cents per hundred, or four dollars per thousand.

I discover that by putting them in large quantities together when fresh dug, they will ferment, or go through a sweating process, which is very injurious, in which I believe the milk is more or less converted into water, and the saccharine principle more or less destroyed, thereby unfitting them either for the table or to keep. It is the opinion of many that they are fit to eat only while fresh—that they get to be out of season, &c.; but this is a mistake. On the other hand, the longer they are kept, the sweeter and more delicately flavored they become, as I argue, from the greater concentration of the saccharine matter as the water evaporates.

There is another false opinion more or less in circulation, in regard to eastern and western grown potatoes, which is, that the eastern grown are sweeter and better than the western grown tubers. This idea was strongly advanced to me one year ago last fall, in Buffalo. On the contrary, I believe what little difference there may be, if any, is in favor of the western grown; in defence of which position, let me advance a short statement, which is this: The Irish potato, as it is called, which is raised in this country, is more delicately flavored than those of the eastern States. This opinion I believe is universally admitted here. I think the cause is in the soil—this being light and loamy, and that heavy clay and gravel;—the one being in a state of nature—rich, fertile, and fat; the other, barren, sterile, and poor in comparison. This I have tried, in the article of beets, in my garden, which in the natural state is a stiff yellow clay. At the first improvement of it, I hauled upon it enough of wettish prairie soil (I can not call it muck) to make two or three beds. The following season was quite a dry one, and the beets which we grew in the clay soil were so bitter we could scarcely eat them, while those of the same seed and variety which grew in the prairie soil,

were mild and sweet. I conclude from analogy, that the western grown sweet potatoes are likely to be the sweetest and best.

Now, a word as to what may be the cause of this false opinion expressed in Buffalo, concerning western grown potatoes. May it not be from the fact that in the west there are a great many varieties of them grown, and many of them of inferior quality, each variety being different almost as apples. Sweet potato amatures have represented to me that the very best varieties are the *Yellow Spanish* and the *Red Spanish*, and that there is little difference between them, some choosing the one and some the other.

Last season I planted from the 10th of June to the 10th of July; the last planted were of course not very large, but paid very well. I believe there are more failures from having the ground too rich than too poor. If manure is thought to be necessary, spread on and plow it in deep, then harrow well, ridge up three furrows together three and a half feet apart, and set the plants from a foot to eighteen inches apart. Keep them clean, the vines loose from the ground in all other places except at the original root, and the ground well ridged up, and you may expect five bushels to the hundred sprouts, if planted by the 10th of June. CYRUS MOORE.—*Port Clinton, Mich.*

GAPES IN CHICKENS.—As my husband is a subscriber and constant reader of your valuable paper, you will, I hope, pardon the liberty I take in addressing you a short article on the subject of "Gapes in Chickens," which, if you should consider worthy a place in your pages, you are welcome to lay before your numerous readers, for the consideration of those who have been learning by dear experience (as I think I have learned) the nature of this troublesome disease. I have been induced to write this from having seen no answer to the numerous inquiries on this subject, that were satisfactory to my mind. One writer attributes gapes to giving chickens wet food; another, to sour food; another to light bread; &c. These theories may all be correct; but from several years' experience in the rearing of chickens, I am persuaded that the food has but little to do with preventing, producing, or curing gapes, since the same results have been produced from giving a dozen different kinds of food prepared in nearly as many different ways.

As many persons who raise fowls appear entirely ignorant of the nature of this disease, I will state plainly my views. The constant gaping is the consequence of an effort on the part of the chicken to expel a knot of small worms, which I have always found in the windpipe, (and not in the gullet, or meat-pipe, as many suppose,) at its lower extremity, where it joins the lungs. Their location appears very evident from the fact that they prevent respiration, and hence the effort to expel them.

The Cause.—I have never yet been able to detect any other cause for this disease than *cold*, as the chicks are always affected during or soon after cold, wet weather, and never in good weather.

The Cure.—I have tried all the prescriptions that have been recommended by the most learned "doctors" who have written on this subject, through the agricultural press—black and Cayenne pepper, Jerusalem oak, spirits turpentine, and a host of other nostrums, that have had no other effect than to assist the little sufferers off. I have also tried to extract the worms with a wire; but this I consider very unsafe, as it kills as many as it cures. I have also tried a feather, with no better success; as one stiff enough to extract the worms is very apt to destroy the chicken. My present remedy, however, has never failed in a single instance, if taken in time. It is this: I procure a spear of blue-grass, and after stripping off the seeds, I twist it in my fingers until I get the fibrous branches closely entwined around the main stem; then pulling out the tongue of the chicken until the mouth of the windpipe is presented, I insert the spear of grass, and turning it around several times, until it reaches the lower extremity of the windpipe, I withdraw it with the worms attached. If, however, the worms do not appear to be all extracted, I have a cup of water at hand into which I plunge the beak of the chicken, which causes it to sneeze up the remaining worms that have been loosened by the grass. It is sometimes necessary to insert the grass more than once, especially with "young practitioners." Many persons whom I have instructed how to cure chickens of gapes, have killed every one they attempted to cure; but upon investigation, I have found that they put the grass down the *throat* instead of the *windpipe*. Great care must be taken in this matter.

To prevent Gapes, I have only to observe a little care in cold, damp weather, to keep my young chickens comfortably housed. An eye should also be kept to avoid those causes in the management of fowls which produce degeneracy, since healthy fowls are not liable to disease.

I may not be correct in my theory; if so, I hope to be corrected. One thing, however, is certain; in my *practical treatment* of the disease, I have the satisfaction of knowing that I never lose a single chicken. A. A. J. JONES.—*Bellefonte Landing, Ky.*

HOMES FOR THE POOR.

BY L. T. C. E., OF ONONDAGA HILL, N. Y.

PERMIT me, through your pages, to call the attention of wealthy and philanthropic agriculturists to the importance of providing homes for the poor, particularly that class employed as farm laborers. A large portion of this class of our inhabitants have never had, and never will have without a little assistance, a home of their own; and many of them depend upon shifting their quarters as regularly as the spring returns. The idea of ever owning a home seems to them an impossibility; yet there are few families whose *unnecessary* expenses, in the course of four or five years, do not amount to more than sufficient to purchase a home that would make them as comfortable as the owner of thousands. A man who never expects to earn faster than he spends, will have but little calculation or economy; hence it is that those persons who live in daily want of the necessaries of life, usually spend more time and money at parades, exhibitions, and for all sorts of sight-seeing, than those who have comfortable fortunes. This miserable habit of continually shifting quarters doubtless begets those thriftless, untidy, and not unfrequently dishonest habits, which are almost invariably found connected with extreme poverty. But instead of wondering at these traits of character, when connected with physical and intellectual destitution, we should wonder at the exception. He who has nothing of his own, will not be likely to be very conscientious with regard to what belongs to another; and it is useless to expect a man to have the same care for neatness or economy while residing on the premises of some wealthy landlord—which he is to occupy but for a year or two, or perhaps at the option or caprice of the owner—as he would have if the premises were his own; or that he will have the same inducement for becoming an honest, industrious, and reputable citizen, that he would have if he expected to become a permanent resident. Give a man a snug little cottage, with but an acre of ground well stored with fruit, with his cow, pig, and poultry, and he will have no more disposition to encroach upon his neighbors than if he were worth ten times that amount;—he has *his* rights; he will consequently respect the rights of others. And if he were obliged to pay his own school bills and his share of taxes, however small they might be, his children would be more likely to be sent to school, and kept from breaking windows and committing other depredations upon public property. I do not make this suggestion as grudging any amount that may be expended for the real benefit of the poor, but because whatever is free is generally considered of little value.

But the greatest evil resulting from this unsettled mode of living, is the influence it has in forming the character and habits of children. They are naturally fond of novelty, and moving into a new neighborhood soon becomes with them a very important desideratum; they have never had a home long enough to become attached to one; they have nothing to leave or lose; and every change, even for the worse, will at least gratify their curiosity. If they are naturally active and intelligent, they early acquire an uneasy, roving disposition, which unfits them for perseverance in any pursuit; they get an idea that "the world owes them a living," which they intend to have for the least labor. Some of them will no doubt make very expert gamblers, jugglers, mesmerizers, spirit-knockers, and not a few will become inebriates and felons. If they are dull and lazy, they become tavern-loungers and vagrants, till necessity forces them to seek an asylum in a poor-house; and a majority of the persons who have once resorted to a poor-house for relief, imbibe a fondness for that mode of life, (which requires little exertion and no calculation or forethought,) and become attached to the society which such an asylum always affords, and ready on the slightest pretence to seek admission again within its walls. I have known veteran paupers who boasted of having been in every, or nearly every, poor-house in the State. Their children in turn become paupers; and in this way pauperism will continue to increase *ad infinitum*.

The expense of supporting the poor is every year becoming more and more expensive, with the discouraging and mortifying assurance that the very method taken to relieve them is augmenting their numbers. Now, for economy's sake, if not for the sake of humanity, let as many as possible be provided with homes. No sober, industrious man, who owns the smallest place that could be called a home, ever need fear a poor-house. In case of sickness or casualty, neighbors would render every needful assistance. If every able farmer would assist *but one* laborer in procuring a home, and occasionally give him a little encouragement and advice, he would render him a more important service than if he were to supply his family with bread; besides, it would furnish an example for others of the same class, which they would soon become ashamed not to imitate. An acre of ground could be purchased and a comfortable tenement erected, in almost any agricultural district, for two hundred dollars; and any healthy, industrious laborer could easily pay for it in four annual installments; for an acre of ground, if skillfully cultivated, would in the mean time contribute largely to the support of his family, and furnish those who were not old enough to get work abroad with something to do towards earning their own living. Improving and embellishing a little homestead would also afford the laborer both profit and pleasure during his spare time, which he would otherwise be very likely to spend in the nearest bar-room. What a delightful change would soon be effected in country scenery, if every laborer were provided with a home of his own. Instead of old, dilapidated dwellings and temporary shanties, scarcely affording a shelter, we should see neat little cottages and gardens, snugly ensconced in their groves of fruit trees, sprinkled over the country, forming no unpleasing contrast with the homes of the more opulent.

I believe all children are by nature agriculturists; I never knew *one* who was not fond of cultivating fruit or flowers. And what man or woman is there, who was so fortunate as to have been brought up on an acre of ground, who does not remember the interest they have taken during childhood in some particular tree or flower, and the assiduity with which they labored early and late, in hoeing, weeding, and watering their plants, till they not unfrequently killed the poor things with kindness. I once knew a poor little invalid who was confined to her room, and mostly to her bed, for nearly two years before her death, who had a tin pan filled with earth, kept on a stand at the head of her bed, which she called her garden. This she divided into compartments of various sizes with a little paling made of bits of shingle, and in these she planted seeds producing plants of the smallest growth. These served to employ more or less of her time every day, till they began to droop, or became too large for their small enclosures; then she would have a return of spring — clear up her garden, move her fences, cultivate her ground, and plant again, with as much variation as possible from her former plan, and watch and tend with as much interest as before. Of all other diversions invented to amuse her and relieve the tediousness of her confinement, she would after a time become weary; this alone afforded her a permanent source of enjoyment. I am confident that if children were provided with comfortable homes, with the privilege of cultivating fruits, vegetables, and flowers, (of which they should not only be partakers, but sharers in the profits,) it would prove a far more efficacious as well as a cheaper antidote for juvenile delinquences and vagrancy, than the best disciplined penitentiary that ever existed.

Building poor-houses, and giving old clothes and broken victuals, is poor charity; it debases the recipient, affords only temporary relief, and will never lessen pauperism. The most effectual and only permanent method of helping the poor, consists in helping them to help themselves.

SOILING CATTLE IN SUMMER.

By soiling, is meant the practice very prevalent in different parts of Europe of keeping cattle in the barn-yard or in stables during summer, and feeding them with green crops. The high price of labor in this country, compared with Europe, is a decided objection to the profitable adoption of the system; yet it is worthy of trial, and we have little doubt that part soiling may be practiced with advantage.

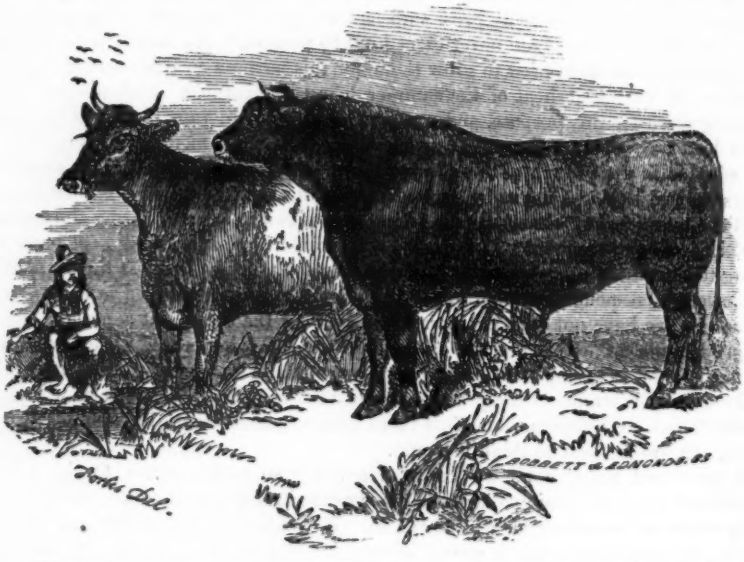
Italian rye grass, lucerne, sainfoin, vetches, and clover, are grown to a great extent in England for the purposes of soiling. Especially are vetches recommended as food for horses, and good farmers usually grow sufficient to supply their teams during the whole summer, so that the horses are never turned out to pasture. We believe several Scotch and English farmers have tried to grow them for this purpose in this country, but have not succeeded, the great heat of the summer being unfavorable. Italian rye grass is now being sown for this purpose, and we think will be found valuable. But clover!—we can beat the world on clover,—the soil and climate of America seems to be peculiarly adapted to the growth of this most nutritious and valuable of all green crops, and we are surprised that it is not more generally grown for soiling purposes. There appears to be little question but what an acre of land mown twice or thrice during the summer, will yield double the amount of food to what it would if pastured and kept bare, with nothing to screen the roots from the scorching hot sun. And doubtless the roots of the plant have a corresponding proportion to the amount of produce yielded in leaves, stems, &c.; so that we have not only an increase of food for the cattle, but a greater amount of vegetable matter left in the soil as food for the following crops. We have always been in the habit of giving our horses green clover in the stable during "nooning," and would earnestly recommend the practice as one that will pay. Whether it will pay to keep the horses up altogether and feed them with green clover during summer, we can not say, but are inclined to think it would.

For oxen and milch cows we know of nothing so well adapted to the climate, and of which you can obtain so large an acreage product, as green corn—directions for sowing which we gave last month, page 160. If you have not yet sown any, it is not too late, and we will warrant it comes in useful. We never knew any one have more than he knew what to do with. It is seldom sown thick enough—four bushels is in our opinion none too much seed per acre, if sown broadcast. It is, too, advisable to sow the corn at different times in the spring, say at intervals of two weeks, so that you will have some just in the right stage to cut during the whole summer; whereas, if you sow the whole at once, you have either to cut some too green or let some get too ripe, and the stalks become pithy and innutritious, and are not relished by the cattle. We do not recommend the practice of growing corn and making it into fodder for winter use. It is a troublesome business curing it properly, and we prefer to get grain as well as stalks in the ordinary way; for though there is probably a destruction of nitrogen, and much of the soluble saccharine matter is converted into woody fibre, in the process of maturing the seed, yet there is doubtless more nutritious matter in *grain* and stalks, than there would have been had it been cut and converted into fodder before the seed was formed.

There is much difference of opinion as to the best method of feeding green corn stalks to milch cows—some good farmers taking them into the pasture and spreading them on the ground, while others object to this plan, saying it makes the cattle restless, that they stand longing at the feeding spot and are always expecting more stalks, and do not disperse and fill themselves with grass. If, however, they are fed regularly every day, and their importunity for more is never complied with, they soon learn that they had better be at other business. Others feed them in the barn-yard, and thus obtain a considerable quantity of manure which would be wasted in the field. The cattle should not be fed with the stalks in too large quantities at a time, or they will be surfeited.

HUNGARIAN CATTLE.

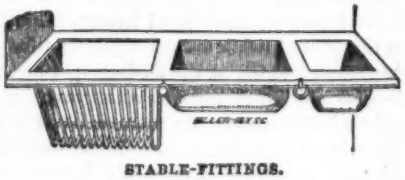
Some time since, we spent an hour very pleasantly at the residence of Roswell L. Colt, of Patterson, New Jersey. His grounds are well laid out, and furnished with rare and fine trees. But what we intend now to call attention to, is his fine Hungarian Cattle, a bull and a cow, which he has named *Kossuth* and *Briska*. They were exhibited by Mr. C. at the late State Fair in this city, where the drawing from which our



HUNGARIAN CATTLE, OWNED BY ROSWELL L. COLT, OF PATTERSON, N. J.

engraving is made was taken. The committee make the following remarks in their report on these cattle: "The committee consider them as an experiment in this country. Their usefulness has yet to be tested. We highly commend the enterprize that sent them here. We doubt, however, whether as much improvement to our American herds will be secured, as with the British stock which has been generally adopted. We recommend a Diploma and the thanks of the Society to Mr. Colt, for his public spirit in sending them to the exhibition."

Cast Iron Enamelled Stable-Fittings.—Messrs. Cottam & Hallem, whose splendid castings occupied a prominent position in the crystal palace, exhibited a very beautiful set of stable-fittings—rack, manger, and water-trough, enamelled. They possess the advantages of beauty, durability, and cleanliness, and are certainly well worthy of attention. Wooden fittings are objectionable in many respects—horses gnaw them if they happen to be kept idle in the stable; and if not looked to very carefully, in warm weather especially, they become sour, and prevent horses from feeding well.



STABLE-FITTINGS.

Horticultural Department.

CONDUCTED BY P. BARRY.

The propagation and culture of fruit trees in the nursery, and the production of fruits in the garden and orchard, at the present time occupy the attention of a very large number of persons in the United States, and constitute a very important item in the general industry. To the majority of those embarking in it the business is entirely new, and they have everything respecting it to learn. The more experienced, even, have much more to learn than they imagine. It is by no means a simple thing—the work or study of a few weeks or months—that will make a nurseryman, or a fruit-grower, even. We not unfrequently hear people say they would like to send their sons to a nursery for a few months, to learn the business; and a man embarking largely in fruit culture, will sit down and address a dozen inquiries to a horticultural journal, expecting replies that will at once enable him to prosecute the matter successfully. Now, we wish to draw attention to these errors; the sooner people are undeceived in these matters, the better it will be for themselves and the community. We are an apt people, to be sure; still we have to learn our alphabet before we read, and a certain length of time is necessary to learn the simplest mechanical art. Agriculture and horticulture present a much wider field for study, and a much more embarrassing one, than any mechanic art; and yet, strange enough, few people are willing to believe that they can not at once leave the work-shop or the counting-room, and become successful farmers, gardeners, or nurserymen. How many are every year awakened from this delusion, by dear bought experience. A few succeed: they are those who appreciate their want of knowledge, and go to work as zealous and earnest students,—like a man who finds himself in a foreign country, ignorant of the language spoken, and conscious that he can not prosecute his travels with either pleasure or profit, until he has learned it. Such is exactly the position of the man who becomes a tiller of the soil, a grower of wheat or corn, a breeder of stock, a propagator of trees or plants, without previous study and preparation. Nature speaks to him in an unknown tongue; he is continually mistaking one sound for another; blunder after blunder confuse him; and he soon finds he must either leave her and return home to his old pursuit, or at once bend himself down, with dictionary, grammar, and "first lessons," to a study of her language.

"Oh, you are exaggerating!" says a friend. "What mystery is there in farming? Who is so stupid as not to know how to buy himself a farm; a few horses, cows, and implements; plow the land, scatter the seed, and harvest the crops? What simple operations!" Pardon us, dear friend, for suggesting that you ought to have some knowledge of the qualities of soils; or you may buy just such land as some one may be glad to get rid of, but will not suit your purposes. You ought to know something of animals: or you will certainly stock your farm with a collection in which every fault known will be represented. You ought to know something of the feeding of farm stock, and their diseases; or half your animals will die before you are aware of their sickness. You ought to know something of the comparative value of the different varieties of grains and vegetables, that you may plant that which will best suit your market and your soils. There are a thousand other matters you ought to know of, and that you must learn by experience before farming will be profitable. So in gardening;—you will find it unpleasant not to know either how or what to plant. And here the operations are more difficult, because much more numerous, and more minute, and less generally understood. The propagation and culture of trees and plants is a great study—not to be learned in a few months. After some sixteen years' daily and hourly experi-

ence, close study, and observation, with opportunities as good as most people have enjoyed, we feel but like an apprentice who had served his first year, and began to know how to handle his tools, and understand their names and uses.

We would have people look less lightly on these pursuits. Young men especially, who aim at acquiring a respectable position in them, should go to work in earnest — begin at the beginning, and discard the fallacious idea that a few months can be any sort of preparation to enter upon this practice successfully. Those who aim at being nurserymen, should go and serve as apprentices for at least three or four years in the best establishments, where they may get a thorough training. To be able merely to put a tree in the ground, or to set a graft or bud, is but a small part of the trade. The time is fast approaching when such acquirements will not do; they will not be sufficient to contend with greater skill, nor will they inspire the community with that confidence without which success can not be attained. A sentiment is fast growing up against quacks, or half-way workmen in any profession, and all such will find themselves run off the track. Reading, study, and observation, continual, are necessary in conjunction with every-day practice.

The growing season is the time to acquire information; everything is active, and yielding to surrounding influences. The effects of soils and manures, dryness and moisture; the attacks of insects and diseases; the habits of growth and bearing of trees; the ripening of fruits; the advantages of different modes of propagation, pruning, and training; and all the various treatment that trees and plants undergo during summer, should be closely watched, and every result be seized upon and turned to account, for the guidance of the future. This applies to every department of cultivation, whether it be the farm, the orchard, the fruit garden, or the flower garden. Our lady friends who are embarking in the culture of flowers for their recreation and amusement, and for the embellishment of their homes, must not rest satisfied with admiration of their beautiful colors or foliage; they must study their habits, observe what soil and treatment suits them best, learn their geography, history, origin, &c., and they will greatly multiply the pleasures and benefits of floriculture.

We hear too many complaints of "barbarous Greek and Latin names;" people want everything easy and ready made. A little study and practice will make the hardest names easy and familiar. The world is wide; nations are various, and speak different languages; the names of people of one country are strange and hard to those of another; but we can not translate them — we must take them as they are. And so with the names of plants, or fruits, or flowers, named by foreigners, — we must learn to pronounce them as we learn other things more difficult.

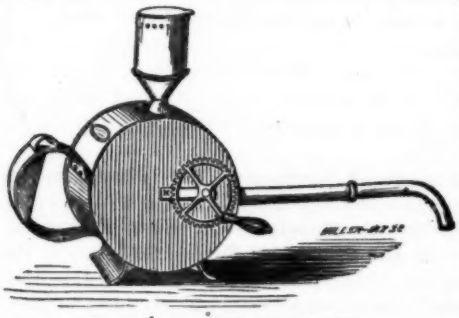
RUSTIC WORK IN GARDENS.

We observe about the country an increased display of huge pieces of carpentry, painted white as snow, and placed in the most conspicuous part of the garden, intended as trellises or supports for climbing plants. Indeed, they are becoming quite *fashionable* — large numbers have been on sale during the spring, in Rochester, and they have become a standing article of commerce. We rejoice at the growing taste and the increased attention to gardening, that make trellises for climbing plants in demand, but we must say we would greatly prefer something more simple, rustic, and natural, — something that would look as though it was merely intended to support a climbing plant, instead of being itself the principal ornament. To our taste, a young cedar tree stripped of the foliage, leaving the bark and branches on, is a much more *beautiful* support for a climbing rose, or honeysuckle, or anything of that kind, than one of these elaborate productions of the carpenter.

When we pass a garden, and see a great painted pyramid of posts and lattice work, with a little, starved, neglected plant somewhere in the grass at its base, the impression is forced upon us, right or wrong, that the proprietor is less a person of true taste than a lover of show — one who has a garden because it is fashionable, more than because it is beautiful. We think better, we confess, of the taste of the poor girl who has the walls of her father's little cabin covered with "morning-glorys" climbing on common strings, than we do of his. We are very far from being opposed to garden embellishments of an architectural kind, but we would insist upon their being in good keeping with the garden; we can not commend the taste that expends ten dollars cheerfully for an "ornament," and one dollar grudgingly for trees or plants. — Great naked pyramids of painted boards and empty iron vases on a naked lawn, are by no means indications of true taste. A garden is no garden, whatever else it may contain, without a profusion of trees, shrubs, and flowers.

We would be glad to see rustic work more generally introduced into gardens. They are cheap, simple, and appropriate, indicative of taste and ingenuity more than wealth or fashion, and more in harmony with the plain and simple character of our village and country gardens, than those of an expensive or elaborate kind. A rustic basket, a lawn filled with verbenas, petunias, or any such long-blooming plants, is a very pretty object. Above we give the figure of one raised on a rustic pedestal. We also annex the figure of a pendant one, which has a very agreeable effect suspended in a room, hall, verandah, or in a green-house. Some very pretty specimens were in Floral Hall at the last New York State Fair, made by Mr. Adam Kachler, of Le Roy. A very pretty pendant one was made of a large oak knot, hollowed out. Others were made of grape vine stems, rough bark, acorns, and fir cones. We shall hereafter give some illustrations of Mr. Kachler's work.

Brown's Patent Fumigator. — This is an excellent English contrivance for fumigating trees and plants, to destroy insects. Tobacco is placed in the magazine at top, and lighted in the same manner as an ordinary smoking-pipe. A draught of air is produced for its combustion by the revolutions of a fan, which draws the smoke in at one part of the cylinder and drives it forcibly out at another in a cool state. It is used in fumigating orchards, fields of turnips, &c., as well as green-houses. It may also be used in cellars, out-houses, &c., wherever insects are troublesome. It is a simple, convenient article, easily used by any one. It is highly recommended by all who have used it in England and this country, and must become of very general utility. It may be had in Boston or New York. The price, we believe, is $5.



BROWN'S PATENT FUMIGATOR.

The Forsythia Viridissima. — This fine shrub, one of the best of Fortune's collection in China, is now, May 10th, loaded with its gay yellow blossoms. We shall give a description of it next month.

HINTS FOR JUNE.

During the whole of April, and the early part of May, up to the 8th, the weather continued cold and backward, but without frost. Hyacinths in the garden were not in full bloom till the 10th of May; about that time we had a few warm days, the thermometer rising above 80 deg. in the shade. Vegetation pushed with uncommon rapidity, so that on the 12th, trees were quite green and cherries in blossom. The fruit crop here promises well. The transplanting season, though unpleasant throughout, has been long, and gave ample opportunity to all who had labor of that kind to perform.

An immense number of trees have been planted the last fall and the past spring, and we trust they will not be forgotten. To secure a good growth, they must receive constant attention. The ground must be kept clean by frequent dressings, unless mulching has been applied, which is very advantageous in all cases. Sawdust, spent tan, half decayed manure or leaves, are all good mulching material. When the heads have not been properly reduced by pruning at the time of planting, and the trees do not push freely, but seem to flag and linger from debility, the branches should yet be shortened, to reduce the quantity of leaves. People sometimes think it a great hardship to spoil a symmetrical, well branched tree, by pruning; but it is always better to do this than lose it, or stunt its growth during the whole season.

Trees intended to be trained in particular forms should be watched, and all badly placed or superfluous branches pinched off; such as are pushing with too much vigor for their position, should be checked. This is the time to mould the trees into the desired form, and to obviate heavy pruning next winter. Yearling trees that have been cut back to produce pyramids, will now show whether the pruning has been properly done. If not cut back low enough, the top shoots, if left, will rob those below, and the shape will be spoiled. In such cases it will be necessary to pinch the top shoots, to check them and encourage those below; and in some cases it may even be necessary to cut lower down. If they have been cut too low, several shoots of equal vigor will be produced; and in order to give the leader due prominence, the others should be pinched to check them. The same principles will apply to older trees.

Trees budded last autumn, or grafted this spring, will require to have the suckers that always start freely below the bud or graft, promptly removed; in some cases they must be gone over two or three times. The growing bud or graft in many cases will require to be carefully tied up to the stock, or to a stake, to prevent breaking by the wind.

Strawberry beds must be kept clean of weeds, and the runners shortened, to turn the whole strength of the plant to the benefit of the fruit. While the fruit is swelling, a few waterings with liquid manure, and in case of dry weather, an abundance of water, will greatly improve the crop. As the fruit ripens, a little short straw or hay should be spread along the rows, to keep the fruit clean.

Flower Garden, &c.—Tie up neatly all tall-growing herbaceous plants, whose stems are easily broken or blown over. Plant out dahlias any time during the month;—we prefer the last half of June for the finest autumn display. Perpetual roses, and all the bedding plants to be had in pots, may be turned out any time during the month. Among the latter we will mention, as being particularly desirable, the scarlet geraniums, salvias, cupheas, heliotropes, lantanas, plumbagos, veronicas, and zauschneria, besides the indispensable verbenas and petunias. We ought also to add *phloxes*—the new varieties are very beautiful; and if small plants are turned out now, they will give a fine bloom in the autumn. *Annuals* will be ready for transplanting. Do this on a moist, cloudy day, or before a shower, if possible. The dwarf, slender-growing sorts, are best grown in masses, like the verbenas, &c. Weeds must be kept down in all parts of the garden, grass kept closely cut, and gravel walks clean and level by frequent raking and rolling.

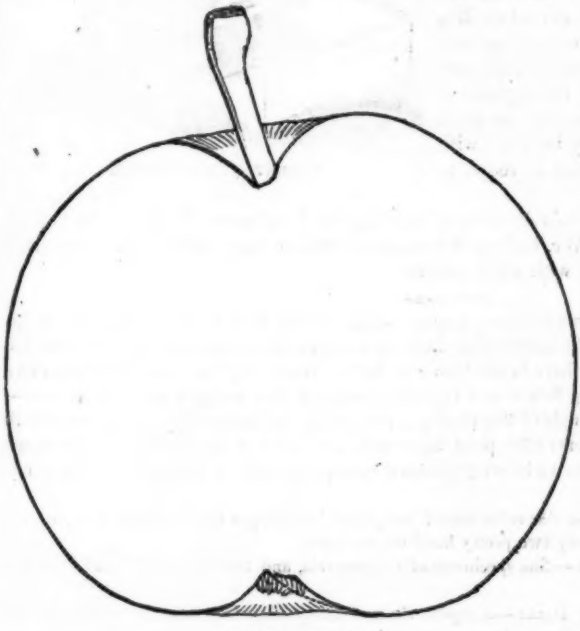
Grass edging must be kept cut to prevent them spreading; as little of the raw edge as possible should appear.

Vegetable Garden.—Keep up a constant succession by frequent sowings, of such things as green peas, radishes, and salads, not forgetting to make ample provision for the main autumn crop of all the leading articles. Use liquid manure and water freely in warm, dry weather, or your vegetables will not be fit for the table.

THE EASTER BEURRE PEAR.

This pear has for several years been spoken of, and propagated and planted to some extent in this country, yet it has not attained any considerable popularity. The reason, we apprehend, is, that its merits are very little known. We are glad to be able to speak of it after repeated and pretty extensive trials.

The *Easter Beurre*, so far, holds the same rank with us among pears as the *Northern Spy* among apples—that is, the best long-keeping table variety. We have them now, 17th April, in fine eating order—kept all winter in a cellar, on shelves, bringing them into a warm living-room ten days or so before wanted for use. Like the *Duchesse d'Angouleme*, it has been almost worthless with us on pear stock. We believe it is so in Europe, too;—at least, we have been told so, both in France and England, by experienced men. This accounts for its limited culture in this country; for, until seven or eight years ago, quince stocks were very little used for the pear. Good table winter pears are now attracting attention, and we believe that this variety will soon take its rank. We think that for the south and west it will still be better than for the north, as it seems to require long, clear, warm autumns, to bring out its excellence.



EASTER BEURRE.

Large, roundish obovate, inclining to oval—large specimens rounder, and smaller ones more oval. *Skin*—rather rough, greenish yellow, with a dull red cheek on well matured specimens. *Stalk*—stout, about three-fourths of an inch long, set in a deep cavity. *Calyx*—closed, in a shallow, plaited basin. *Flesh*—buttery, melting, and high flavored. *Tree*—a fair grower. *Shoots*—reddish spotted. *Leaves*—folded, like those of the *Bartlett*. Exceedingly productive. Keeps till May.

MACHINE FOR CUTTING GRASS PLOTS.—It is not a little difficult to have a lawn well cut with a common scythe; few people know how to do it; and to those who do it, it is a laborious and tedious operation. A machine that would do it so easily and so well as that described below is said to do, would be of great value. The manufacturers say: "This unique and valuable adjunct to the pleasure ground and garden of the nobleman or gentleman, has now stood the test of twenty years' experience, and continues in as high repute as ever. One house alone have sold over fourteen hundred, which have given universal satisfaction; and is still in good demand. This machine is so easy to manage, that persons unpracticed in the art of mowing may cut the grass on lawns, pleasure grounds, and bowling greens, with ease. It is easily adjusted to cut to any length; and the beauty of its operation is, that it leaves no seam, nor any of the cut grass upon the lawn. Other advantages of this machine are, that the grass may be cut when dry, and consequently it may be used at such hours as are most convenient to the gardener or workman—while the expense of mowing is considerably lessened, as more than double the work may be done with the same manual labor that is requisite with the scythe."

PATENT GRASS-CUTTER.

We saw this article for sale in most of the English Implement Warehouses, and all recommended it highly. We believe this or some similar ones have been introduced here, but we are not aware with what results.

HORTICULTURAL SOCIETY OF THE GENESEE VALLEY.—This Society held its first exhibition of the season on the 11th of May. The contributions were not numerous, but several articles were exhibited in greater perfection than they have before been seen here. The Society has not before ventured a show so early, and hence spring flowers and vegetables have not been brought out. There were—

From Mr. C. J. RYAN—a couple of fine plants, in pots, of the *Spiræa prunifolia*, loaded with its pretty, daisy-like, double flowers; (this plant forces well, and is one of the prettiest garden shrubs that bloom in May; it ought to be in every garden;) a couple of tubs of verbenas; a collection of hyacinths; &c.

From Mr. JNO. DONNELLAN—a nice collection of pot-plants, including a fine *La Reine* rose; several of the newest and best petunias; two pretty hand boquets; &c.

From Messrs. A. FROST & Co.—fine specimens of *Cryptomeria*, and two large and handsome tree roses in pots.

From Messrs. ELLWANGER & BARRY—a superb show of thirty named varieties of hyacinths—the most attractive feature of the show; six varieties of crown imperials; a small collection of greenhouse plants, embracing azaleas, cinerarias, rhododendrons, and the beautiful Tropæolum tricolorum.

Mr. DONNELLAN exhibited fine samples of the *Early Oval Rose* radish, of which we brought the seeds from France; also, of the *Early Frame*; very large *Palestine* lettuce; and a bunch of *Giant* asparagus, surpassing any we have seen in Rochester.

Mr. C. F. CROSMAN exhibited fine cucumbers, (the only ones shown;) also, fine lettuce, rhubarb, and asparagus; also, a dwarf orange, loaded with fruit.

Beautiful *Northern Spy* apples were shown by JAS. H. WATTS, in very tasteful glass jars.

Mr. VAN DOORN exhibited some well executed oil paintings of fruits, that were much admired.

The exhibition was well attended, and seemed to give general satisfaction to the visitors.

Ladies' Department.

GOLDEN BARTONIA.

The *Golden Bartonia*, or *Bartonia Aurea*, was introduced into England, from California, in the year 1835, by the botanist Douglas. Mr. D. introduced many beautiful flowers as the result of his botanical tour in California, and this is one of the most beautiful of them all. This excellent botanist was killed a few years after, by falling into a pit made to entrap wild cattle, in the Sandwich Islands. He introduced into England more ornamental annuals than any other collector.

"It is only beneath the bright sunshine," Dr. Lindley observes, "that its splendid flowers unfold. In the early morning, the plant is a shabby bush, with pale, greenish-grey branches, and weedy leaves; but as the sun exercises his influence, the petals gradually unroll, as if in acknowledgment of his power, till every branch is radiant with gold: and so metallic is the lustre of the inside of its petals, that one would really think they must be composed of something more solid and enduring than the delicate and perishable tissue of a flower."

BARTONIA AUREA.

The seed should be sown in a sheltered situation, (as the branches are very brittle, and easily broken by the wind,) in a rich, moist soil.

We give the following valuable article on the *Treatment of Annuals*, from the *London Gardeners' Journal*. It is so good, and so appropriate at this time, that we could not forbear giving the whole article, thus occupying another page with our *Ladies' Department*.

"'My flower-garden is small, but I like to see it gay. I endeavor to make it so, but I never succeed so well as I could wish. I have no convenience for wintering what are called bedding-plants, and my means will not allow me to spend much money in their purchase; but my friends, who know my love for flowers, and are acquainted with my circumstances, tell me I might accomplish a great deal by employing annuals. I have tried them for several seasons, and am not satisfied with the effect they produce. The greater part are so chary of their beauty, that they scarcely retain their charms for a week. Every shower, too, and every breeze, seems to destroy their attractions, and altogether I despair of attaining my object; yet certain it is, that from annuals I must principally expect my summer display of floral beauty. If you can furnish me with a few hints, and enable me at least to approximate my wishes, I shall be gratified.'

"This note, which we give at length, contains the substance of one or two others which have come to hand on a like subject. At a corresponding season we yearly receive similar communications, and as the information required is of general application, we give our reply in such a manner as will, we trust, benefit not only those directly interested, but many of our readers besides.

"Annuals are calculated to effect much in the summer decoration of a flower-garden: their variety is great. In habit, in foliage, in the color of their flowers, they exhibit a a great diversity, and from among them may be selected such as are suitable for all situations, and to please all tastes. But no plants are, as a general rule, worse treated than annuals. Because they are for the most part easily obtained, and as easily raised, they receive but a scanty amount of attention — certainly not of a nature to develop their proper character and value. As generally met with, they are weak, straggling, and weedy, easily damaged by rain and wind, and generally of but brief duration; yet if proper attention is afforded them in the several stages of their progress, they become highly effective and useful, both for cultivation in the open borders as well as for pots. Many of the kinds are admirably adapted for 'massing.'

"We shall now only speak of hardy kinds, such as may be sown in the borders where they are to flower, or in a reserve garden, and be afterwards removed to their permanent situations. When sown where they are to flower, the prevailing practice is to allow them to remain too thickly, smothering each other in their struggles for light and air, inducing a premature maturity, which of course is followed by their speedy dissolution. As soon as they are fairly above the ground thinning should commence, and be progressively followed up till in the place of fifty or more plants perhaps only five remain. Of course the distance at which it will be necessary to leave them will depend on the kinds, and on the richness of the soil. But the best system with the hardy kinds is to sow them in a spare piece of ground, and prick them out as soon as they are large enough, and only removing them to the flower-borders as vacancies may occur, or as they approach their flowering state; and by thus treating them, a good succession is always obtainable—a point of no mean import where they have to be depended on for a principal item in the summer display.

"In sowing them, a somewhat poor soil should be chosen; and when of a sufficient size to handle, choose a level spot, which can be shaded during the hottest part of the day, and after thoroughly beating or rolling it, to produce a hard surface, place upon it a layer of compost, chiefly composed of leaf-mold, in which plant the young annuals a few inches apart. With proper attention to watering and protection from insects, their progress will be rapid; abundance of roots will be produced, and the hardened surface beneath will preserve their roots from penetrating too far, to render their being transplanted safely. Here they will always be ready for removal to their blooming places. No check will result from their removal if the most ordinary care is observed. Scarcely a root will be lost in the process, and they become effective at once. Should they not be required till fairly in bloom, they may be as safely removed then as at any other time.

"It will be obvious that by a little attention to successional sowing, a supply of good plants may be obtained from the beginning to the end of the season."

Flower Seeds.—We are still (20th May,) receiving applications for flower seeds. Some of our varieties were exhausted some time ago, and as we obtain our seeds from Paris, we have no opportunity to replenish. We, however, do the best we can with all applicants. At a great outlay of labor and money, we have now sent out seven thousand packages of seeds, averaging about thirteen varieties to each package, of the best annuals grown; and if these are well cared for, and the seed distributed judiciously, our labor will not be in vain.

Editor's Table.

NEW YORK STATE AGRICULTURAL SOCIETY.—We have received many communications complaining of certain acts of the State Agricultural Society, which we have not published, but we now give one below from one of the oldest and best farmers in Western New York. Among the things complained of is that those who have premiums awarded them must send to Albany for them, instead of receiving payment where the Fair is held. We think this is good ground for complaint. For a month or two after the last Fair not a day passed but from one to half a dozen persons called at our office to know where they could obtain their premiums. These claims were small, ranging from one to five dollars, others were entitled to a copy of Transactions. When informed that they must apply at Albany for their awards, and that the Transactions must be sent to the care of some one on the Express route, and the Express charges paid, a general dissatisfaction was expressed—some declaring they would take no further trouble, but abandon their premiums. We are sorry it is so; yet we believe that until the present feeling is entirely changed, the State Fair will receive very little countenance or support from this section of the State.

PERMIT me, through the pages of your useful journal, to express my views relative to the management of the New York State Agricultural Society. It appears to me that it does not give the encouragement and patronage to the producers, that was intended that it should do, and which it is capable of doing, provided that it is properly conducted.

An agricultural society is an association of the producing community, embracing all the productions that are useful, ornamental, or ingenious; and the primary object of the society is to elicit facts tested by experience, and circulate practical and useful information, to encourage and stimulate the practical operators to improvement, so as to enable them to produce more and a better quality of the earth's productions and all the various articles and commodities produced, so as to lessen their cost and increase their usefulness to the consumer; and the premiums are for the express purpose of encouraging and stimulating the operators to perfect these great objects.

The Fair is for the purpose of exhibiting all the multifarious productions of industry, art, and skill, in their greatest perfection; so that all who examine them may judge of their value, and learn by the united experience of the past how to improve and increase their productions. And it was expected that the statesman, the scientific, the professional, and the wealthy members of community, who wished to promote useful improvement and advance the interests of society, would attend the Fair and unite with the producers *on true principles of equality*, so as to exhibit by their actions that the cultivator of the soil, the mechanic, and the artizan, are the bone and sinew, and the supporters of society,—the most useful, and ought to be the most honored portion of community;—and also to exhibit to the active and enterprizing youth, that to be a practical operator in any of the useful vocations of life is as honorable as any of the heretofore dignified callings. But it was not so at the State Fair of 1851. The most of those dignitaries who attended were a privileged order—invited guests and honorary officers of the Society. They were provided for and accommodated in extravagant style, at the expense of the Society and the citizens of Rochester; and were decorated with badges of estimation, as though they were of aristocratic blood, which spoke in language plainer than tongue could express, that they, the honored few, were the dignitaries of the realm, and that the producers were inferior beings: and the young men were compelled to see, that to be a practical operator is not the road to honor and distinction.

It never was intended that the State Fair should be a profitable festival to a few, at the expense of the producers; and it is a new principle in the management of agricultural societies, that the officers and wealthy citizens must be hired to attend the exhibition; and if such must be the case, in future we had better do without them, and appropriate the money that they cost to the encouragement of useful improvement.

It was not much of an encomium on the intelligence of our cultivators, that the Society had to send to Illinois and get a politician to preach politics for the improvement of agriculture in the Empire State. And how much it cost the Society, is best known to those who handle the money. There were a hundred men on the ground, that could have given a better and more practical agricultural address. A PLOW-HOLDER.

TRIAL OF IMPLEMENTS.—We call particular attention to the Trial of Implements by the N. Y. State Ag. Society, at Geneva, in July, the particulars of which will be found in advertisement.

TOBACCO.—In the March and April numbers of your paper you gave directions for the cultivation of tobacco. As I have always considered the *Farmer* devoted to the improvement of the soil and the mind, I am at a loss to know how the cultivation of tobacco is to improve either, when we see that those who do not use the weed have the best health, to say nothing about the filth connected with its use, and the number of tobacco users that lament the day they ever learned to use it. All this is an unanswerable argument against the use of tobacco as a luxury for man. Then why cultivate it? Why impoverish the soil to reproduce that which makes man filthy and diseased? I am surprised that the *Farmer*, which for years has been laboring to improve the taste, and induce its readers to engage in the culture of wholesome and refreshing fruits, beautiful and sweet smelling flowers, should ever have polluted its pages with a description of the culture of tobacco. Had you recommended the culture of Canada thistles or pigeon weed, I could have pardoned you; for, great as the injury of these weeds is to the farmer, they can be turned to some use in the end. Sheep will eat the young thistle when cut and dried as hay, and oil is extracted from the seed of the pigeon weed. I know that a great number of *asses* use tobacco, but I never knew one that grew fat on it.

But if you or your correspondent recommends its culture, then give us some directions for its use. Let us know how large a chew of tobacco a boy may take without killing him; or how long he may suck a cigar before it will puke him. Let us have the picture of a pipe and the outline of a tobacco box, to place by the side of an outline of fruit in the *Farmer*.

What an association there would be between a pear and a plug of tobacco! If ever this world is to return to its Eden-like purity, and ignorance and crime be known no more, then first must tobacco, as well as intoxicating drinks, be banished from the daily use of our young men. And when this is done, then will universally commence the culture of those fruits and flowers that you have so long and earnestly recommended to the readers of the *Farmer*. RICHARD JOHNSON.—*East Groveland, N. Y.*

We give the above a place in our columns, not because we think the strictures called for by anything we have said, or that we have "*polluted our pages*" by giving the best method of raising tobacco. Had we recommended the use of tobacco, or even its general growth, then the case would have been far different, and there would have been some propriety in the censure so liberally bestowed; but, so far from this, although it is not our business as editors of an agricultural journal, to tell men what they shall eat or what they shall drink, yet we have dropped a word or so against the use of tobacco, and even in the article complained of stated "we did not wish to see tobacco raised here as a common crop." We have often wished that, if men would smoke and chew a noxious weed, one could be discovered nasty enough to suit, and less exhausting to the soil than tobacco. But when our readers solicit information on the growth of any crop, we do not feel at liberty to withhold it because we may think the use of the article deleterious. We have now several letters asking the best method of growing hops; and as we feel under obligation to answer these inquiries, we hope our correspondent will not accuse us of encouraging the use of beer. We suppose tobacco will be grown as long as there is a good market for it; and if we tell how it can be grown with the least possible injury to the soil, we shall accomplish some good: but if the world would follow our example as well as our advice, there would be little need for the information.

Inquiries and Answers.

SUPERPHOSPHATE OF LIME.—In your May number, SILAS H. MEACHAM inquires where the superphosphate of lime of good quality may be obtained, and what is the price. You say, in answer, "It is being manufactured by the New Jersey Zinc Co., and is for sale in New York city at 2½ cents per pound," (price of guano.) This manure may be manufactured by Mr. MEACHAM, or any other expert farmer, for less than one cent per pound, and the certainty of having a pure article and saving his 1½ cents to expend in agricultural works.

The plan I adopt to dissolve bones, is to have them ground as fine as I can, put them into a wooden vessel, pour on as much water as will wet them, generally till it rises to the upper surface; then pour in sulphuric acid, 40 lbs. to 100 of bones; stir them frequently, until dissolved. After the bones are dissolved, I mix them with as much earth as will enable me to spread it over the field. The cost will be—

For Bones,	100 lbs., at 1 cent per lb.,..	$1 00
Sulphuric acid,	40 lbs., at 2½ cts. per lb.,..	1 00
Water,	80 lbs., ...	
And we have	220 lbs. of the manure for..	$2 00

and I have not much doubt a better article than the one made by the Zinc Company.

Last year I raised some mangel wurzels, and manured some of them with this manure put in the bottom of the drills, and they were better than where I put barn-yard manure. The above amount of this manure is sufficient for an acre of wheat, which it will improve to the satisfaction of the farmer. The timothy after my wheat thus dressed was the best I ever cut; I think it paid four or five times the cost of the manure. There is no manure made that is so cheap as this superphosphate of lime. S. G.—*London Britain, Pa.*

We have often recommended our readers to preserve bones, and convert them into superphosphate of lime; but, as many farmers have no bone mill in their neighborhood, and getting sulphuric acid is somewhat troublesome, it would be a great advantage to have a good article that could be purchased ready for use at a reasonable price—two and a half cents per pound we think an exorbitant one; and, as it is manufactured from a *mineral* phosphate of lime, and contains no organic matter, the bone-made superphosphate would be a superior article for wheat and other grain crops. It is said, however, that the mineral contains 90 per cent. of bone-earth phosphate, and as bones contain but 45 per cent., the mineral-made superphosphate of lime will be the best article for mangel wurzel, beets, ruta bagas, turnips, and all crops which are particularly benefitted by phosphate of lime.

The method of dissolving bones as recommended by our correspondent, is a good one. It is preferable to mix the water with the bones previous to adding the acid, than to mix it with the acid before applying it to the bones.

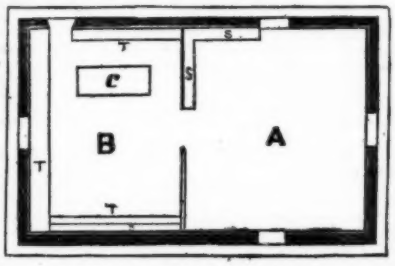
The term "dissolving bones with acid," is apt to convey a wrong impression of the process. The acid does not dissolve them, but simply converts the phosphate of lime into a bi-phosphate, or super-phosphate, of lime. This it accomplishes by abstracting a portion of the lime, setting free its phosphoric acid, which unites with the undecomposed phosphate, converting it into the bi-phosphate of lime.

The value of the change is this: *Phosphate* of lime is insoluble in water; *bi-phosphate* or *superphosphate* of lime is exceedingly soluble: so that,

as plants only take up their constituents in solution, it will be perceived why the superphosphate of lime is so much more efficacious the first year than bones, five bushels of superphosphate of lime producing a larger crop of turnips than fifty bushels of roughly ground bones. Bones undergo a gradual decomposition of themselves, when mixed with the soil, yielding their constituents to the water and plants, the organic matter being soonest in an assimilable condition. Hence, bones applied to wheat are attended with good results in many instances; while superphosphate of lime made from minerals does no good.

It is very questionable whether it will pay to decompose bones with sulphuric acid, to be applied to wheat. Our own opinion is, that it will not,—that the bones would do about as much good without the acid as with it; but for root crops, the superphosphate of lime is the best manure we have ever used. The present month is the proper time for sowing mangel wurzel, beets, and ruta bagas. For these crops the superphosphate, whether from bones or minerals, will be greatly beneficial, and will pay well. (See March number, page 82.)

Dairy, or Milk-House.—I send you a design and specifications for a dairy, or milk-house, which you may give to your readers, if you think it worth a place in your journal, and do not find one answering E. H.'s wants more fully



PLAN OF DAIRY, OR MILK-HOUSE.

The building is 10 by 18, which I think large enough for a private family; but should any one wish to enlarge it, it might be made 10 by 20, or 15 by 25, without altering the plan.

The foundation is laid with stone, and raised 2½ feet above the surface. Upon this is set the frame, and enclosed by vertical weather boarding. The distance from the stone to the eaves is 8 feet, and to the comb 12 or 14 feet; because a steep roof will turn rain better, last longer, and keep the interior cooler, than a flat one.

A is the front room, used for various purposes—to keep empty vessels in, and such other things as are used about a dairy, and is also a pleasant place in summr to churn in. The floor of this room is laid with plank, level with the top of the stone

Steps lead from this room down to the milk-room, B, the floor of which is laid with brick or stone. Stone I consider preferable, for reasons given hereafter. The dairy table, *c*, occupies the centre of the room, and is used to place pans upon when the milk is to be skimmed, and also while straining the milk. T, T, T, are troughs, made of stone or cement, in which to place the pans when filled. The water is conveyed to and from these troughs by means of lead pipes.

The cost will vary from $50 to $70; $70 being in my opinion, more than enough to finish in plain style a house of the above mentioned dimensions. The bill of costs might thus be summed up, at the highest prices:

Mason's bill, including stone,	$12 00
600 feet of plank for weather boarding,	6 00
2000 shingles, at $5	10 00
Carpenter's bill, including nails and glass,	30 00
Sundries, including hire of extra help,	12 00
Amount,	$70 00

I would say to E. H., that he need not be afraid of having too much ventilation. Don't put tan bark about your milk-house, and never allow any decaying matter to come near it. Never put lime into it to absorb any such matter, but apply plenty of cold water, and admit the sun and air plentifully. Lay the floor of the milk-room with stone, as they will not absorb "spilt milk" like brick or wood, and cause an unpleasant odor to pervade the rooms. Make the roof steep, as this tends to keep off the rays of the sun, and leaves the interior cool, and you will have no use for tan bark. Above all things, though, keep your milk-room clean, and then you will not be troubled with the unpleasant thought of having to eat an old dish rag, or other decayed matter, that has been absorbed by your cream. An Ohio Farmer.—*Hillsboro, Ohio.*

To preserve Girdled Trees.—In the April number of the Farmer, page 129, J. H. L., of East Charlemont, Mass., inquires if any of your correspondents know how to preserve trees that have been girdled. Tell him to take out a block of wood extending into the bark above and below the girdle, and take from the body or limb of another tree a block corresponding in size and shape, with the bark on, and adjust it in the place, and bind it there, on the principle of engrafting. I have recommended this plan before, and it has proved completely successful. C. Moore.—*Port Clinton, Mich.*

Northern N. Y. Live Stock Insurance Company, Plattsburgh, N. Y. For terms, please apply to agents of the Company.

Superphosphate of Lime

FOR SALE in lots to suit purchasers, warranted pure, at 2½ cts. per pound. LONGETT & GRIFFING,
State Ag. Warehouse, 25 Cliff st., New York.
June, 1852.—6-2t.

Peruvian Guano.

AND other Fertilizers. Several hundred tons of first quality of Peruvian Guano, constantly on hand for sale.
Also, Bone Dust, Plaster of Paris, and Poudrette.
A. B. ALLEN & CO.
April, 1852—tf. 189 and 191 Water st., New York.

NEW AND FINE SHRUBS AND PLANTS.

ELLWANGER & BARRY, Proprietors of the Mount Hope Nurseries, Rochester, N. Y., solicit the attention of those interested in Ornamental Plants to their large stock of rare and beautiful Shrubs and Plants, among which are the following:

HARDY SHRUBS.

Deutzia Scabra, or Garland Deutzia, a fine white flowering shrub.

Forsythia Viridissima.

Ribes Gordoni—Gordon's Currant—yellow and crimson, very fine.

Spiræa Prunifolia flore pleno—small, double, white flowers in great profusion; fine dense habit.

Spiræa Lanceolata, or Reevesi, one of the finest of the genus.

Spiræa Chamædrifolia, Nicoderti, Lindleyana, Japonica, and twenty others.

Syringa (Philadelphus) *Pubescens, Zepherii, Cordata, Double, Columbiana*, and others, all fine.

Lonicera Ledibouri—a fine Californian shrub.

Tamarix, Africana, Germanica, Gallica, and *Lebanotica.*

Viburnum Lantanoides, a beautiful shrub.

Wiegela Rosea—the finest hardy shrub, lately introduced from China.

The above excellent things can be furnished in quantities, at low prices.

SELECT GREEN-HOUSE AND BEDDING PLANTS.

FUCHSIAS.—Our collection is one of the best in America. The most distinct and best varieties yet introduced and quite rare, such as *Pearl of England, Fair Rosamond, Serratifolia, Serratifolia multiflora, Fulgens Corymbiflora, Corymbiflora Alba, Magnificent, President, President Porcher, Spectabilis*, &c., are propagated largely.

VERBENAS.—A collection of fifty varieties, comprising everything fine introduced to this time.

HELIOTROPES.—*Souvenir de Liege, Corymbosum*, and some new varieties just received and to be announced hereafter.

PLUMBAGO LARPENTÆ.

CUPHEAS.—*Platycentra, Stringulosa*, and others. The first is one of the finest bedding plants.

LANTANAS.—*Ewingi*, the fine new Cincinnati variety, rose and straw color; *Mutabilis Major*, and several others.

BOUVARDIAS.—*Triphylla*, and others.

ABUTILONS.

SALVIAS.—*Splendens Major, Oppositifolia, Azurea*, and others—superb plants for masses.

FABIANA IMBRICATA.

HYDRANGEAS.—*Hortensis, Japonica, Cordata*, &c.

BUDDLEA LINDLEYANA—a fine shrubby plant with large clusters of purplish lilac flowers; blooms in the autumn.

HABROTHAMNUS ELEGANS—a superb plant, half shrubby, with large clusters of showy crimson flowers; blooms equally well in the open ground in autumn, and in the house in winter.

PETUNIAS.—A large collection, embracing all distinct and good sorts.

LOBELIA FULGENS INSIGNIS, LOBELIA FULGENS ALBA—flowers of dazzling beauty—both new.

VERONICA LINDLEYANA—a charming autumn flowering plant; long elegant spikes of pale (nearly white) blossoms. *Veronica Andersoni*—finest of all—*new.*

TREE VIOLETS—white and purple.

CHRYSANTHEMUMS.—A fine collection of the novel and beautiful pompone or dwarf varieties.

DAHLIAS.—A superb collection, including the English and French prize sorts of 1851—all at very low rates.

CINERARIAS.—A fine collection of new and beautiful sorts, including *Magnificent, Attilla, David Copperfield, Wellington, Beauty of Newington*, &c. &c.

All the above articles furnished in large or small quantities, at low rates, and packed so as to go any distance with safety.

Priced Catalogues of Dahlias, &c. &c., ready 1st of March.

March 1, 1852.

Albany Tile Works,

No. 60 Lancaster St., West of Medical College.

THE subscriber has now on hand, and is prepared to furnish to Agriculturists, Horse-Shoe and Sole Tile, for land drainage, of the most approved patterns. They are over 1 foot in length, 2¾ to 4¾ inches calibre, from $12 to $18 per 1000 pieces—being the cheapest and most durable article used. Orders from a distance will receive prompt attention. [4-6t] JOHN GOTT, Jr.

MOORE'S RURAL NEW-YORKER:

A WEEKLY HOME NEWSPAPER,

Designed for both Country and Town Residents.

THIS Journal, now in the third year of its existence, has attained an extensive circulation and acquired a high reputation. It embraces more Agricultural, Horticultural, Mechanical, Scientific, Educational, Literary and News matter, interspersed with numerous Engravings, than any other paper in the Union—and has no superior as an AGRICULTURAL AND FAMILY NEWSPAPER. Its various departments are under the supervision of an efficient corps of Editors, who are determined to render the contents of the whole paper USEFUL, PURE, AND ENTERTAINING. They are assisted by a large corps of Contributors and Correspondents,—including several popular Authors and Editors,—capable of adding interest and value to the pages of any publication.

The NEW-YORKER is published in the BEST STYLE. Each number contains EIGHT DOUBLE QUARTO PAGES, (forty columns,) illustrated with from two to six Engravings. It is pronounced by its Patrons and the Press the MODEL PAPER of its class, in both *Contents* and *Appearance*—and we invite all who desire a FIRST CLASS JOURNAL, for the Home Circle, to give it an examination, and, if approved, support.

TERMS—IN ADVANCE:—*Two Dollars a year—$1 for six months. Three copies one year for $5; Six copies, and one to agent, for $10; Ten copies, and one to agent, for $15; Twenty copies for $25.* ☞ *Specimen numbers sent free.*

☞ Subscriptions respectfully solicited,—to commence with any number. Back numbers to 1st May or April, furnished if desired. A new half volume commences 1st July,—and hence now is a good time to subscribe. Money, properly enclosed, may be mailed at the risk of the Publisher. Address D. D. T. MOORE,

June 1, 1852. Rochester, N. Y.

THE NEW YORK REAPER.

MR. McCORMICK, in an advertisement recently published, says, "that while Seymour & Morgan are going on to manufacture more reapers, they have made no provision to pay the judgment against them for $17,806; and another suit for infringement in the manufacture of five hundred reapers since the commencement of the first is about to be brought against them—and that, *if they fail to pay the damages, the purchasers* are not only *liable*, but may at any time *and will be sued for the same.*"

In answer to this, we say, that Mr. McCormick has no judgment against us for $17,806, or for any other sum. He obtained a verdict against us for upwards of $17,000, on account of the machines which we manufactured and sold in 1850; but proceedings were immediately taken on our part to present the case to the U. S. Supreme Court, before which tribunal we hope to obtain a new trial, and in that case feel very confident that we can now make a successful defence. If we should be disappointed in this, we expect to pay the verdict, unjust as we know it to be.

With regard to the machines we are now building, Mr. McCormick very well knows that they contain not a single feature which is embraced in any unexpired patent of his, and that we have as much right to build and sell them without reference to him, as farmers have to plow their lands without asking his permission. It will be observed that he does not pretend, in his advertisement, that THE MACHINES WE ARE NOW CONSTRUCTING are any infringement of his patents.

The 500 machines which we sold last year were no infringement of his rights, and if he should see fit to carry his threat of prosecuting us into execution, it will be for the purpose of frightening, and deterring farmers from purchasing machines of us this year, and not with the expectation of obtaining a verdict against us. His object is to drive us out of the business of making Reapers, that he may have the entire field to himself. This, if truth and justice are allowed to prevail, he can not do.

Those wishing the New York Reaper for the ensuing harvest, will do well to give us their orders early, as we have heretofore been unable to supply the demand.

SEYMOUR & MORGAN.

Brockport, May 18, 1852.

THE subscriber deals in, and sells on commission, all kinds of good patents. Worthless ones need not be offered.

A good Grass Mower wanted.

The best of reference given. ALLEN VANE,

No. 157 South Water Street, Chicago, Ill.

April 10, 1852.—3-3t.

New York Agricultural Warehouse,
189 & 191 *Water Street, New York.*
A. B. ALLEN & CO.

HORSE POWERS, Threshers, and Separators. The Endless Chain or Railway Powers of our own manufacture, both single and double geared, for one and two horses, which has never been equalled for lightness in running, strength, durability, and economy. They are universally approved wherever they have been tried.

2d. The Bogardus Power, for one to four horses. These are compact and wholly of iron, and adapted to all kinds of work.

3d. Eddy's Circular Wrought-Iron large Cog Wheels, for one to six horses. A new and favorite power.

4th. Trimble's Iron-sweep Power, for one to four horses.

THRESHERS—Improved Threshers made upon the best principles, threshing clean with great rapidity.

FAN MILLS for Wheat, Rye, Oats, &c., of the best construction.

RICE FAN MILLS made expressly for the South.

MILK PANS—Glass and Enamelled Iron Milk Pans, very desirable articles.

CHURNS—Thermometer, Atmospheric, Kendall's, and other kinds.

HAND CULTIVATORS and Hand Plows—are very useful implements in garden culture.

SCYTHES—Grass, Grain, Bush, and Lawn Scythes of the best kinds.

RAKES—A large assortment Steel, Iron, and Wooden-headed Garden Rakes, and Lawn and Hay Rakes.

HORSE HAY RAKES of new and highly improved patterns.

REAPING AND MOWING MACHINES—These have been fully tested, and embrace many late improvements, and we can highly recommend them.

GARDEN AND FIRE ENGINES, very useful machines, arranged on wheels, for watering gardens or walks, and affording protection from fire. They will throw a strong stream forty feet high, are easily worked, and not liable to get out of order. Also, small Garden Pumps and Syringes of various styles.

HAY AND COTTON PRESSES—Bullock's Progressive Power Presses, combining improvements which make them by far the best in use.

WATER RAMS, Suction, Force, and Endless-Chain Pumps; Leather, Gutta-Percha, India-Rubber Hose, Lead Pipe, &c.

CABBAGE PLOW—Very light and convenient for working among cabbages.

POTATO PLOW, with double mould and other forms for hilling and weeding.

Our Implements occupy three large stores, and we believe they make up the largest and most complete assortment in America. In addition, we have a machine shop, employing upwards of one hundred men, where any articles in our line can be made to order.

A. B. ALLEN & CO.,
June, 1851.—6-tf. 189 and 191 Water St., New York.

Fruit Farm in Ohio for Sale.

"POMONA FARM"—120 acres of excellent land; 50 acres young orchard, containing 3000 peach and 2000 apple trees of the choicest market varieties, commencing to bear, and partly enclosed with Osage Orange hedge. About 40 acres is woods pasture with living water. The soil is strong loam, well adapted for grain and grass, as well as fruit—was especially designed for fruit, stock, and poultry—about 100 improved fowls are on the premises. The buildings are of little value. The situation is very healthy and pleasant; good water; schools and other social advantages convenient.

The farm is situated at the thriving village of West Jefferson, 14 miles west of Columbus, at the intersection of the "National Road," the "Xenia Turnpike," and the "Cleveland, Columbus, & Cincinnati Railroad"—only 100 rods from the village and depot—thus affording excellent facilities for travel and transportation, with certain markets for products. It will be sold at a bargain.

Address M. B. BATEHAM,
Editor Ohio Cultivator, Columbus, O.
June 1, 1852.—6-2t*

GERVASE WHEELER, Architect,
NORWICHTOWN, CONNECTICUT,

RESPECTFULLY solicits professional engagements from those desirous of building. Designs for residences, churches, school-houses, arrangement of grounds and out-buildings, and for internal decoration, prepared and forwarded by express. Terms moderate—two dollars charged for such information as can be given in a letter.

GREAT SALE OF BLOOD CATTLE.

ON Wednesday, the 18th of August next, I will sell the chief part of my large herd of Blood Cattle—chiefly cows, heifers, and heifer and bull calves—comprising upwards of fifty full-bred Short-Horns.

Also, eight thorough-bred Herefords—a two years old bull, a yearling bull, three cows, and three calves. One of the Hereford cows ("Rarity") was imported from England by Messrs. Corning & Sotham, in 1841. The others, excepting the two years old bull, are her descendents, by bulls of the same stock.

Also, two or three Devon bull calves, got by Mr. Ambrose Stevens' imported bull "Candy," bred by the distinguished Mr. Quarity, of Devonshire, England, and out of cows descended from the herd of the late Earl of Leicester.

The remainder of the cows and calves, forty to fifty in number, are high-bred Short-Horn grades, with a dash of Devon blood in some of them.

The calves of the thorough-bred Short-Horns and grade cows, are mostly got by the imported Short-Horn bull "Duke of Exeter." (10,152.) of the celebrated "Princess tribe," bred by Mr. John Stephenson, of Durham, England, whose herd is excelled by none, if equalled, by any now in England.

All the Short-Horn and grade cows and heifers which come in season, will be bulled, previous to the sale, by "Duke of Exeter."

Many of the cows, both thorough-bred and grade, are descended from the Bates bulls "Duke of Wellington," imported by George Vail, Esq., of Troy, N. Y.; and by "Symmetry," son of "Wellington," out of Mr. Vail's imported Bates cow "Duchess."

This stock has been bred with a strict regard to their milking quality, in which they have been fully *proved*, and are not excelled by any herd of cows in the United States. They are all gentle, with fine silky udders, milk easy, and are animals that will be satisfactory to any one in want of the best breeding and milking stock.

The sale will take place at the residence of Peter Gurbrane, two miles above Albany, on the Troy road, on the homestead farm of Gen. Van Rensselaer, where the cattle will be for a week before the sale.

Catalogues with pedigrees will be prepared by the 15th of June, and sent by mail to all post-paid applicants.

I will also sell at the same time, two pairs of six years old thorough-bred Short-Horn oxen, and two or three pairs of matched steers.

Also, ten or twelve South-Down buck lambs, got by an imported ram, from the unrivalled flock of Jonas Webb, of Babraham, England, and from Ewes descended from the flocks of Mr. Webb, and Mr. Ellman of Sussex.

LEWIS F. ALLEN.
Black Rock, N. Y., May, 1852.—6-3t*

The Celebrated Horse "Morgan Eagle."

THIS truly celebrated horse will stand for Mares this season, commencing April 19th, at the Franklin House in Geneseo, on Monday, Tuesday, Wednesday, and Thursday, and at Scoville's Eagle Hotel in Mt. Morris, on Friday and Saturday of each week during the season.

"Morgan Eagle" was purchased in the fall of 1847, in Tunbridge, Vt., by J. Henderson, at a high price, for the express purpose of improving the stock of horses in this county. He is about 16 hands high, and well proportioned, is a bright bay, and for symmetry and action, cannot be surpassed. Morgan Eagle, and the celebrated trotting mare, Lady Sutton, of New York, were sired by Old Morgan Eagle, of Vermont.

Breeders of horses are particularly requested to call and examine him.

Pasture will be furnished for mares sent from a distance and good attention paid to them. Escapes at the risk of the owners. Those who part with mares before foaling, will be held responsible for the insurance. Mares must be returned every two weeks or they will be held for the insurance. J. HENDERSON & Z. H. AUSTIN,
Geneseo, April 16, 1852.

Improved Subsoil Plows.

THE subscribers offer for sale an Improved Subsoil Plow, made under the advisement of Prof. J. J. Mapes, and free from the objections urged against those formerly in use. The wearing parts are so arranged that they may be easily and cheaply renewed, while the amount of force requisite to move them is less than half that required by those previously made.

Price—One Horse Plow, $5; with draft rod, $6. No. 1, with draft rods, $8.50. No. 2, do., $11.

LONGETT & GRIFFING,
June, 1852.—6-3t. No. 25 Cliff street, New York.

DURHAM CATTLE.

I HAVE imported several cows and heifers of the celebrated Princess Tribe of Short-Horn Durham Cattle, bred by and from the herd of John Stephenson, England. This tribe is unequalled in England or America, for style, quality, and milk.

In connection with Col. Sherwood, I imported the prize bull Third Duke of Cambridge, (5,941,) bred by the distinguished breeder, Thomas Bates, of England, and got by his famous prize bull, Duke of Northumberland (1,940.) We also imported from Mr. Stephenson, the Princess prize bull, Earl of Seaham, (10,181.) I have also imported Princess I, Princess II, Princess III, Princess IV, Princess V, and the bulls Wolviston and Earl Vane, all of the Princess Tribe, and bred by Mr. Stephenson. I also imported the cow Waterloo V, bred by Mr. Bates, got by his prize bull Duke of Northumberland, and of the same family as Third Duke of Cambridge. I also purchased of Mr. Ramsay, the cow Wildeyes V, bred by Mr. Bates, and bought by Mr. Ramsay at the sale of Mr. Bates' cattle, in England, in 1850.

I am now breeding these imported cows and heifers, to the imported prize bulls Third Duke of Cambridge, Earl of Seaham, and Vane Tempest; also, to Wolviston and Earl Vane. I can supply breeders with bull calves out of these cows and heifers, got by these imported bulls, of a *red* or roan color, as may be preferred.

The Third Duke of Cambridge won the first prize for Durham bulls at the Show of the New York State Agricultural Society, at Syracuse, in 1849, beating among others, three bulls of Mr. George Vail's (of Troy) breeding, including Buena Vista. He also won the first prize for Durham bulls at the show of the same Society at Albany, in 1850, beating among others, Mr. George Vail's bull Meteor.—(Meteor by Mr. Vail's imported Bates bull Wellington—dam, Mr. Vail's imported cow Duchess.)

Earl of Seaham won the first prize for two-year-old Durham bulls at the Show of the same Society at Albany, in 1850, beating Mr. George Vail's bulls Fortune and Eclipse. Seaham won the first prize for Durham bulls of all ages two years and over, at the Show of the American Institute in New York, in 1850. Seaham also won the first prize for Durham bulls at the Show of the New York State Agricultural Society at Rochester, in 1851, beating Mr. Lewis G. Morris' prize bull Lamartine, and many others.

Princess II won the first prize for yearling Durham heifers at the Show of the New York State Agricultural Society at Syracuse, in 1849, beating Mr. Chapman's Fashion from Mr. Vail's herd. Princess II also won the first prize for two-year-olds at the Show of the same Society at Albany, in 1850, beating, among others, Mr. George Vail's two heifers, Hilpa 2d (got by Mr. Vail's imported Wellington, out of his imported cow Hilpa,) and Eunice 4th.

Princess I is the dam of Col. Sherwood's prize bull Vane Tempest. At the Show of the New York State Agricultural Society at Albany, in 1850, as a bull calf, and at the Show of the same Society at Rochester in 1851, as a yearling bull, Vane Tempest won the first prizes, beating, in both instances, Mr. Vail's bull Kirkleavington (got by Mr. Vail's imported Wellington, out of imported Lady Barrington.) Of these imported cows and heifers, Princess II has alone been shown. Wolviston and Earl Vane have not been exhibited.

Third Duke of Cambridge is the only bull now in America bred by the celebrated Thomas Bates of Kirkleavington, England, and is the best bull ever brought to America from Mr. Bates' herd.

Wolviston is brother to Earl of Dublin, bred by Mr. Stephenson, that is now let at a high price, to that celebrated breeder, Sir Charles Knightley, Leicestershire, England. Earl Vane, now a yearling, is brother to Vane Tempest.

Breeders desiring the blood of Mr. Bates' herd, can nowhere else in America, than from Third Duke of Cambridge, "procure it with such high characteristics of style, quality, symmetry, and substance."

Breeders buying bulls of the Princess Tribe, will get those which are superior to all other Short-Horn Durham Cattle. All Mr. Bates' great leading prize animals, winning at the great English Shows, viz: Duke of Northumberland, Duchess 34th, Duchess 42d, Duchess 43d, Cambridge Rose, &c., were got by Mr. Stephenson's Princess Tribe bull, Belvedere, (1,706,) and he never got beaten when he showed the get of Belvedere.

As feeding beasts, no Tribe ever surpassed the Princess. Earl of Seaham in six months, March to September 1851, made over 600 pounds growth.

The Princess Tribe of Short-Horns is concededly the best milking tribe of Durham cattle in England; all the cows of the tribe milk capitally. Of the four which have dropped calves for me, all are very fine milkers. Princess I, at four years old, has given twenty-six quarts a day, very rich milk. And Princess IV, with her first calf, has given twenty-two quarts a day. Col. Sherwood's Red Rose of this tribe, four years old, getting grass only, made in thirty successive days of May and June 1851, sixty pounds and four ounces of butter; and forty-seven pounds and eleven ounces in thirty successive days in August 1851, which was a period of great drouth.

6-1t-a AMBROSE STEVENS, New York city.

LEWIS G. MORRIS'

THIRD ANNUAL SALE, BY AUCTION,

OF

IMPROVED BREEDS OF DOMESTIC ANIMALS,

Will take place at Mount Fordham, Westchester Co., (11 miles from City Hall, New York,) on WEDNESDAY, JUNE 9, 1852. JAMES M. MILLER, Auctioneer.

APPLICATION need not be made at private sale, as I decline in all cases, so as to make it an object for persons at a distance to attend. Sale positive to the highest bidder, without reserve.

Numbering about fifty head of Horned Stock, including a variety of ages and sex, consisting of Pure Bred Short Horns, Devons, and Ayrshires; Southdown Buck Lambs, and a very few Ewes; Suffolk and Essex Swine. Catalogues, with full pedigrees, &c., &c., will be ready for delivery on the first of May—to be obtained from the subscriber, or at the offices of any of the principal Agricultural Journals or Stores in the Union. This sale will offer the best opportunity to obtain very fine animals I ever have given, as I shall reduce my herd lower than ever before, contemplating a trip to Europe, to be absent a year, and shall not have another sale until 1854.

It will be seen by reference to the proceedings of our State Agricultural Society, that I was the most successful exhibitor of Domestic Animals, at the late State Fair.

I will also offer a new feature to American breeders—one which works well in Europe; that is, *letting* the *services of male animals;* and will solicit propositions from such as see fit to try it. CONDITIONS—The animal hired, to be at the risk of the owner, unless by some positive neglect or carelessness of the hirer; the expense of transportation too and from, to be borne jointly; the term of letting, to be one year or less, as parties agree; price to be adjusted by parties—to be paid in advance when the bull is taken away; circumstances would vary the price; animal to be kept in accordance with instructions of owner before taking him away.

I offer on the foregoing conditions, three celebrated prize bulls, "Major," a Devon, nine years old; "Lamartine," a Short Horn, four years old; "Lord Eryholme," Short Horn, three years old. Pedigrees will be given in Catalogues.

At the time of my sale, (and I would not part with them before,) I shall have secured two or three yearly sets of their progeny; and as I shall send out in August next a new importation of male animals, I shall not want the services of either of these next year. I would not sell them, as I wish to keep control of their propagating qualities hereafter.

I also have one imported buck, the prize winner at Rochester last fall, imported direct from the celebrated Jonas Webb; and also five yearling bucks, winners also, bred by me, from bucks and ewes imported direct from the above celebrated breeder. They will be let on the same conditions as the bulls, excepting that I will keep them until the party hiring wishes them, and they must be returned to me on or about Christmas Day. By this plan, the party hiring gets rid of the risk and trouble of keeping a buck the year round. All communications by mail must be prepaid, and I will prepay the answers. L. G. MORRIS.

Mount Fordham, April, 1852.—5-2t.

Field Seeds.

AUSTRALIAN WHEAT—very superior. The berry of this grain is extra large, and makes the best of flour. It produces a greater average crop than any other variety now grown in New York. Several years' experience in its cultivation, proves that it is less liable to rust or mildew than other kinds; and as the stalk is large and strong, it is also less liable to blow down or lodge. Price, $4 per bushel. Other varieties of wheat, such as the White Flint, Mediterranean, Black Sea, &c.

BUCKWHEAT, of the best kinds in market.

RUTA BAGA, or Swedish Turnep Seed. The Purple Top and other superior varieties.

TURNEP SEED—Large White Flat, Long White, Red Top Flat, Yellow Aberdeen, Yellow Stone, and other improved kinds for the field or garden. A. B. ALLEN & CO.,

June, 1852.—6-tf. 189 & 191 Water st., New York.

EMERY & COMPANY'S

RETAIL PRICE LIST of Horse Powers, Threshers, Separators, Saw Mills, Feed Mills, Fanning Mills, &c., &c., manufactured by themselves, and delivered on board any conveyances at Albany, N. Y., or at any place in the United States, by the addition of freight:

Emery's Patent Changable Power, Thresher, Separator, and Bands complete, for 2 Horses,.....$150
" " " 1 Horse,..... 120

Emery's Improved Wide Rack & Pinion, with Thresher, Separator, and Bands, for 2 Horses,..... 120
" " " " 1 Horse,..... 95

Common or Wheeler Rack & Pinion Power, Thresher, Separator, and Bands, for 2 Horses,..... 135
" " " 1 Horse, ... 110

If sold separately, the following prices are charged:

Emery's Changeable R. R. Horse Power, for 2 Horses,. 110
" " " 1 Horse, . 80

Emery's Wide Rack and Pinion Power, for 2 Horses,. 90
" " " " 1 Horse, . 60

Common or Wheeler R ck & Pinion Power, 2 Horses,. 95
" " " " 1 Horse, . 75

Thresher with cylinder 26 inches long, 14½ in diameter, together with Separator and Fixtures,..... 35

Fanning Mills with pulleys for Band,.....$26, 28, 30

Portable Circular Saw Mill, 24 inch saw filed and sett, for sawing railroad wood, slitting fencing, &c.,..... 35

Upright or Felloe Saw for Wheelrights,..... 40

Churning attachment for driving one or two churns at a time of barrel size, except churns,..... 12

Sett Bands. Wrenches, Oil Can, and Extras,..... 5

Cross Cut Saw arrangements for butting and cutting off logs, including saw, guides and connections for use, 12

Feed Mill, cast iron plates,..... 35

French Burr Stone Mill for Grinding, 18 inch diameter, 100
" " " " 20 " 125

Power Corn Sheller, for 1 or 2 Horses,..... 35 to 50

TERMS—Cash, or approved notes or acceptancies with interest, payable within four months in Albany, New York, Boston, Philadelphia, or Baltimore, as may best suit the purchaser.

All articles warranted made of good materials, and to operate as represented, or may be returned within three months at the expense of manufacturers for home transportation, and purchase money refunded—the purchaser being his own judge in each case. For further particulars, see previous advertisements, or address the subscribers. Liberal deduction to dealers. Local Agents wanted to sell and put the above in operation. EMERY & CO.,

June, 1852. 369 & 371 Broadway, Albany, N. Y.

Emery & Co.'s Patent Horse Powers and Threshers.

THE undersigned have been appointed sole agents for the sale of this valuable Power and Thresher in the city of New York, where a large assortment may be found at the manufacturers prices. LONGETT & GRIFFING,

6-1t State Ag. Warehouse, 25 Cliff st., New York.

Pure Java Fowls.

THE subscriber offers for sale a few pure Java Fowls, from imported stock direct from Java. These fowls are very rare, and in good qualities are not excelled by any variety in the United States. $5 for first quality; $3 for 2d do.

Address J. W. PLATT,

June, 1852.—6-1t* Rhinebeck, N. Y.

Emery's Patent Latest Improved PREMIUM R. R. HORSE POWERS, &c.

ROCHESTER AGENCY.

THE Subscriber, late from the Agricultural Works, Warehouse, and Seed Store of Messrs. Emery & Co., Albany, (where he has been engaged for the past six years,) has been induced to establish an Agency for the sale of their justly celebrated Premium Horse Powers, Threshers, Separators, &c., in Rochester. Particular attention will be paid to selling and putting up the Horse Powers, and other fixtures for threshing, &c. A thorough knowledge of these machines enables him to put them up more satisfactorily than has been done heretofore. Price and terms same as at Albany, transportation added.

He will also keep for sale, Emery's Seed Planters, the best in use; Circular and Cross Cut Saw Mills, ready for use, adapted to the Power; Plows; Cultivators; Hay Cutters; and all other agricultural implements.

All interested are invited to call and examine the machines and implements at the store of Briggs & Bro., No. 68 State Street, Rochester, N. Y.—where the undersigned will be found ready and qualified to explain the merits and practical operation of all articles in his line of trade.

May, 1852. E. D. HALLOCK.

TRIAL OF IMPLEMENTS

By the New York State Agricultural Society,

JULY 1852, AT THE VILLAGE OF GENEVA.

THE trial of Grain Reapers, Mowing Machines, Steam Engines for farm purposes, Grain Drills, Horse Powers, Flax and Hemp Dressing Machines, Threshers, Seed Planters, Cultivators, and Broadcast Sowers, will take place at Geneva, between the 12th and 26th of July next. (The particular day of the commencement of the trial will be given hereafter.) The competition will be open to all who become members of the Society, and enter their machines for trial.

Upwards of $400 will be awarded to the successful candidates; and Inventors are invited to be present with their machines, and engage in this trial, which will be conducted in a manner to secure practical and reliable results, that will be of importance to the whole agricultural interest of the country.

Persons desiring to compete must become members of the Society by the payment of $1, and enter their names with the Secretary by the 5th of July, and their implements.

All desired information as to the regulations for the trial will be furnished on application to the Secretary.

B. P. JOHNSON, Secretary.

Agricultural Rooms, Albany, May, 1852.

Peas! Peas!!

WE are now receiving by the first boat from Canada—

1,000 bushels pure White Field Peas, such as Golden Vine, Creeper, White Canada, etc.
500 bushels White Marrowfat.
100 " Black Eyed do.
100 " Blue Prussian.
200 " Early Washington.
100 " Early Frame.
100 " Early Warwick.

Farmers who want good Peas at low prices, will please call at the Genesee Seed Store and Agricultural Warehouse, 63 and 65 Buffalo st. J. RAPALJE & CO.

April, 1852.

Prices of Agricultural Products at the Principal Markets in the United States. — May 30, 1852.

	New York.	Boston.	Rochester.	Chicago.	Cincinnati.	Philadelphia.
Beef, per 100 lbs.....	$6.00 a 7.50	$6.00 a 7.50	$5.50 a 6.00	$4.00 a 4.25		$4.25 a 5.25
do mess, per bbl..	9.75 12.75	12.00 15.00	10.00 10.50			16.00 16.50
Pork, per 100 lbs....			7.00 7.50	4.00 4.12½		
do mess, per bbl.	18.50	19.00 20.00	16.00 19.00	16.50 17.00	$16.37 a 16.50	19.00 20.00
Lard, per lb.....	9 10	10 11½	9 10	9 9½	8 10½	10½ 11½
Butter, do	15 21	17 25	16 18	8 10	14 18	14 16
Cheese, do	6½ 8	6 9	7 8	5 7	6½ 7½	
Flour, per bbl.....	4.00 5.75	4.75 5.75	4.62 4.75	4.00	3.22	4.25 5.25
Wheat, per bush....	90 1.11	90 1.05	96 1.00	70 76	60 62	95 1.02
Corn, shelled, per bu.	63 66	61 66	50 54	33 34	27 29	61 64
Rye, do	73	73 78	69 70		50	75
Oats, do	33 43½	40 46	33 40	18 21	25	43 45
Barley, do	64 66	75	67 70		40 50	
Clover seed, do	7¼ pr. lb.	9 a 11 per lb.		12½ per lb.	4.00 4.25	4.12½
Timothy seed, do	16.13 per tce.		2.25 3.00	2.25	1.50 2.50	2.75 3.00
Flax seed, do	1.20 1.30	1.20 1.35	1.25 1.50	1.00	1.00	1.25 1.30
Hay, per ton.....	13.00 14.00	13.50 14.50	12.00 15.00		8.00 15 00	
Wool, per lb.....	30 43	31 46	30 40	30 40	26 30	
Wood, hard, per cord			4.00 4.50	3.25 5.00		

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ADVERTISEMENTS, to secure insertion in the Farmer, must be received as early as the 10th of the previous month, and be of such a character as to be of interest to farmers. We publish no other. Terms—$2.00 for every hundred words, each insertion, *paid in advance.*

Improved Stock.

CATTLE of the Durham, Devon, Hereford, Alderney, and Ayrshire breeds.

SHEEP of the Native and French Merino, Saxony, South Down, and Cotswold.

PIGS of the Lincoln, Suffolk, and Berkshire breeds.

From our long experience as breeders and dealers in the above kinds of stock, and our excellent situation for purchasing and shipping, we think we can do as good justice to orders, as any other house in the United States.

A. B. ALLEN & CO.,
April 1, 1852—tf. 189 and 191 Water st., New York.

Clover and Timothy Seed.

NOW on hand and for sale at the Genesee Seed Store and Agricultural Warehouse, 63 and 65 Buffalo St.

500 bushels good Timothy Seed.
200 " prime Clover.

Rochester, April, 1852. J. RAPALJE & CO.

Potatoes for Seed.

1000 bushels *White Mercer Potatoes*, an excellent potato, yielding first rate and never rotting It is the favorite here Price, $4 per barrel.

Also, 100 bushels of the *Mexican Potato*—the very best potato in existence for the table, so pronounced by all who have tested them.

Those who wish either of these kinds must apply soon, as they are going off with a rush.

Rochester, N. Y., May, 1852. J. RAPALJE & CO.

Young Morgan Tiger

WILL stand the ensuing season at the stable of Aaron Miller, two miles southwest from Lodi, Seneca Co. Terms of insurance, $10.

This *justly celebrated Horse* has been owned and kept by J. M. Gillet, of Wayne Co., three seasons—took *First Premium* at Wayne County Fair in 1850, and certificate of *Best Horse* exhibited 1851. His colts, one and two years old, took First Premiums at the State Fair in 1851. Pasture at reasonable charge. MILLER & SWARTHOUT.

Lodi, May, 1852.—6-1t*

The Practical and Scientific Farmer's own Paper.

THE GENESEE FARMER,

A MONTHLY JOURNAL OF

AGRICULTURE AND HORTICULTURE,

ILLUSTRATED WITH NUMEROUS ENGRAVINGS OF

Farm Buildings, Domestic Animals, Implements, &c.

VOLUME XIII, FOR 1852.

DANIEL LEE & JAMES VICK, Jr., EDITORS.
P. BARRY, Conductor of Horticultural Department.

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DANIEL LEE,
December, 1851. *Rochester, N. Y.*

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